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VOLUME XIV **SEPTEMBER 1956** **NUMBER 3**

The Central Council for Health Education

THE HEALTH EDUCATION JOURNAL

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Published by

THE CENTRAL COUNCIL FOR HEALTH EDUCATION

TAVISTOCK HOUSE, TAVISTOCK SQUARE,

LONDON, W.C.1.

Publications Officer: MRS. W. E. DUNCAN

Founded 1927 *Incorporated* 1936

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The HEALTH EDUCATION JOURNAL and the HEALTH INFORMATION DIGEST are published at two-monthly intervals. During the year two issues of the Health Information Digest appear, in January and July, and four issues of the Health Education Journal, in March, May, September and November. The subscription for the six issues is 15s. a year, post free.

Editorial

DOES THE CONSUMER COUNT ?

THE report *An Inquiry into Health Visiting** makes very interesting reading, but it has come to us as a disappointment. It is not easy to say this of a report which sets out to lay so much stress on health education, but it must be said because this report, like that of the Guillebaud Committee, has been given considerable publicity and will be considered and referred to repeatedly.

Our disappointment is with its assumptions and methods of gathering evidence. Like the Guillebaud report, this inquiry ignores the consumer and appears to have been satisfied that evidence from professionally interested parties was adequate. The quaint old-fashioned procedure of these two committees in this respect is comparable to a chain store investigating its marketing and staffing without reference to the customer. The monopolistic position of the Health Service makes such assumptions possible but it does not inspire our confidence in the value of the evidence or the conclusions. In the case of the health visiting report this is particularly distressing because it is contrary to the principles of health education to make recommendations without consulting the consumer. It would therefore be a great disservice to the growth of the health education movement if this concept were to go unchallenged.

It is now generally accepted that the first lesson that the health educator has to learn is that she must know her public, their needs and interests, their assumptions and resistances. In this the committee has not set an example. Though references are made to many approaches that can be called educational, we are left with the impression that the attitude which excluded the consumer's interests has coloured the committee's views on health education generally. We are told in several places that health education is a matter of advising, instructing and demonstrating. To-day this seems naïve, and we should have preferred something less didactic, more like Florence Nightingale's views when she said, "It is quite useless to send round and lecture, because people don't like being lectured. Let someone go and live among the people and become their friend." We feel that instead of advising, instructing and demonstrating, the experienced health educator would substitute listening, informing, discussing, and letting people form their own conclusions.

To take the fundamental controversy over the combined health

* H.M.S.O., 1956, price 6s. 6d.

visitor/nurse/midwife; it would be interesting to know what representative mothers feel about this problem. Would they prefer a combined health visitor/nurse/midwife, or would they prefer to receive three different people? What favours education —to build up a continuing relationship with one individual in sickness and health, as is done with the general practitioner, or promoting variety? *A priori* if the aim of health visiting is health education we would feel that the nurse who is also a midwife, and carries out the service of treatment when the family is in need, is more likely to be accepted as adviser and friend in Florence Nightingale's sense of the word than one who, however tactful, must inevitably be seen as to some extent a critic.

After putting all the strongest functional arguments in favour of combined work, and after admitting that very few health visitors have had the opportunity of experiencing it, the report then comes to what may be described as a trade union conclusion —that health visitors won't have it. The evidence is unconvincing and the conclusion displays the danger of consulting only one of the interested parties.

Sir Harold Himsworth observed recently that integration takes place within a man, not between men. Now that preventive medicine and health education are established it would seem to us that the time has come to reintegrate the social, medical and educational functions in one person rather than further to cement the divisions. This is a matter for the basic training both of doctors and nurses and for adjusting case loads to make it possible.

The idea put forward for consultant health visitors of outstanding ability available to help in difficult cases should overcome the objection that the health visitor doing combined work cannot be sufficiently profound in all the branches of her practice. The recommendation, as put forward in paragraph 339 is, however, rather muddled, and seems to envisage in addition a multiplicity of odd jobs which on the face of it have little to do with a consultant function.

Though the general principles seem sound, it is also a matter of some regret that a document which states that the chief function of the health visitor is health education has not devoted more space to a consideration of the nature of health education and the training required for it. It would seem that an opportunity has been lost for a serious evaluation. We can only hope that the mass of interesting comment of which the report is composed will lead to deeper studies of the educational problems of the health visitor herself and of the public at large.

MARRIAGE AND EARLY ENVIRONMENT

Part of a survey of factors affecting happiness in marriage

By EUSTACE CHESSER, Research Director,
Research Council into Marriage and Human Relationships

A PREVIOUS article,* based on an investigation recently made into women's attitudes towards marriage, home and family, dealt with the influence of religious belief and practice on certain aspects of the informants' lives. It was shown that the possession of genuine religious belief—as apart from a merely nominal membership of any particular denomination—did operate in the direction of greater happiness, both in childhood and adult life. It was suggested that perhaps the explanation for this lay in the greater ability of the religious to conform to prescribed codes of custom and morality. The question was raised of how far this ability to conform played a part in deciding whether or not people would be religious—and how far that ability was due less to externally imposed principles than to innate psychological factors. In other words—are some people born able to "conform" and others not?

In this article we will consider some other aspects of early environment believed to be important in their effect on both childhood and adult life. Included in this are the loss of parents (either through death or separation), the relationship that existed between the parents (during the childhood of the informants) and that which existed between the parents and the children.

1. Loss of a Parent

As one would have expected, the death of the mother had a most adverse effect on childhood happiness—as indeed did the loss of both parents. On the other hand the death of the father appeared to play little if any part in affecting childhood happiness.

* *Health Education Journal*, May, 1956, p. 59.

Whilst the apparent relative unimportance of fathers might be partially explained by the child's greater need for and dependence on the mother, this finding must surely provoke somewhat rueful reflections in the minds of the big "he-men" brought up in the conviction of their indispensability!

Less easy to explain is the fact that the practice of pre-marital sexual intercourse was more common amongst those who had lost their mothers at an early age. Did they indulge in this as a substitute for true love or as a compensation for their unhappiness?

Significantly those who had lost their mothers during childhood did not achieve success in marriage as often as those who had not experienced such loss.

Separation or divorce of parents had a much more adverse effect than the death of a parent on childhood happiness. It also appeared to influence the extent to which pre-marital intercourse was practised—this being much more common amongst the children of separated parents. Happiness and stability in marriage, on the other hand, were less common. A high percentage (93 per cent) of those whose parents had separated, themselves admitted to having thought seriously of divorce or separation. This was about three times greater than amongst those whose parents had not separated.

Possibly of the greatest significance was the finding that, where unhappily married parents had divorced or separated, their children suffered rather less than where no separation had taken place. In both cases, of course, there was a considerable degree of resultant unhappiness. It has always been thought and vehemently stated that it was far better for the children that the unhappy home should remain intact—which shows how dangerous it is to dogmatise.

Obviously the effects of the separation are largely dependent on its cause. In some cases the relationship between the parents may have been such that the actual separation came as a mixed blessing if not a relief.

Nor must one forget that the manner in which the separation takes place is of the greatest importance in minimising or aggravating the situation. The worst effects will be seen when the atmosphere is one of bitterness and recrimination, whilst the relatively least harmful effects will occur where there is some degree of goodwill and understanding despite the separation.

The motive of the parent who desired the custody of the child would be another determining factor. Was it for genuine love, possessiveness, a sense of guilt or, possibly, the wish to use the child as a pawn in the game?

What subsequently happens will naturally depend on whether the child remained with her father or mother, with the parent of her choice or with the "good" or the "bad" parent and the

total background, in which economic factors will undoubtedly play a part.

The manner in which the child compensated for the loss of a parent, together with her reaction to the possible advent of a step-parent, would further influence the ultimate effects.

And so one could go on enumerating the many factors involved. Suffice it to say that the psychological trauma following the separation or divorce of parents is not in itself the all-important factor. It is what takes place prior to this which is most telling and which explains why some children fare better than others.

2. Parent–Child Relationships

The survey attempted to assess the influence of parental control on the informants' childhood and adult happiness.

Many motives, not all obvious, prompt parents to exercise strong control over their children. It must be recognised that such parents seek to impose their own ways of thought and behaviour and demand conformity to whatever social codes and conventions they themselves observe—in other words the process is one of "conditioning". Likewise, those so-called "progressive" parents who bring up their children with an excess of freedom and little control are also seeking to impose their ways of thought and behaviour—a "conditioning" of a very different type but "conditioning" none the less.

We have heard a great deal about the evils of the over-strict upbringing. But it is not sufficiently recognised that the normal child does not really want complete "freedom" and is afraid of it. His sense of security is strengthened, not weakened, when he knows that there are limits beyond which he must not go. Some degree of control, therefore, is essential for his own well-being.

It is the extreme in either direction that is at fault. The child may react to a strong authoritarian upbringing by becoming timid, repressed and incapable of normal self-assertion. Or he may react by becoming rebellious, aggressive and resentful of all authority. Likewise the child can react to excessive freedom by failing to develop a reasonable degree of security which may show itself in either excessive timidity or excessive aggression.

As in most things in life it is the happy medium that is wanted. Moderation in parental control and punishment produced the best results. The question of punishment was studied in considerable detail—it is enough to say here that the effects of this were largely determined by whether or not the informants felt it to be just.

The survey also showed that pre-marital intercourse and unhappy marriage were much more frequent amongst those who had had an authoritarian upbringing.

One of the most interesting findings was the generally unfavourable effect of the "mother-dominated" home.

Where the mother had been the dominant personality childhood happiness had been less frequent, the figures for pre-marital intercourse higher and those for happiness in marriage quite significantly lower. There was no comparable effect for "father-dominated" homes!

One wonders why. Could it be that the reversal of the traditional pattern of masculine dominance in the home is not so beneficial after all—and that the informants (who *were* feminine) were prompted by some obscure instinct to sense something unnatural in the situation of the mother as the ruling power? The cynic may doubtless reply that women were masters of the home long before the days of feminine emancipation. Be that as it may, there was obviously something amiss in these mother-dominated homes.

The answer probably lay in the clash of personalities between husband and wife—and/or, of course, between mother and daughter. If the husband were the meek, "hen-pecked" type who accepted domination then the domestic atmosphere might be relatively harmonious if not particularly desirable—the more so if the daughters were similarly minded. But if—and this seems more likely judging from the greater unhappiness of such homes—the husband did resist only to be defeated in a continuous running conflict with his wife, then the home would suffer accordingly.

Much might also depend upon the mother's motive for dominating the home. In some cases it might have been due to necessity resultant on an irresponsible or ineffectual husband. But it seems more likely that her domination was an expression of her inner conflicts. These might have included a strong anti-masculine protest, a deep sense of frustration at the limitations of domestic life (especially where the mother was fundamentally the career woman), or the desire to establish herself as the power utterly indispensable to her family. All these could compensate for a possible feeling of inferiority.

There was a close association between "mother dominance" and unhappy parental marriage and the greater frequency of quarrelling between the parents. Once again it was shown that the middle way was best—namely, where father and mother were relatively of equal significance.

The survey brought out quite clearly that the specific factors influencing happiness had to be seen in relationship to all other factors. Quite a number of these proved unfavourable when considered in isolation—but not when considered against the total background. It was the totality of this—and the balance of factors within it—that determined the effect. A single "bad"

factor against a plurality of " good " ones could have little, if any, ill effect, whilst a " bad " factor against a generally " bad " background might well be the last straw.

The survey* concerned itself with many other influences and these were all assessed, but in determining their effects the dangers of over-simplification were all too apparent and the interpretations had to bear this in mind.

* The report of the survey is to be published by Hutchinson's Medical Publications, Ltd., under the title of *The Sexual, Marital and Family Relationships of the English Woman.*

PUBLIC OPINION ON CANCER

In view of the findings of the survey of public opinion on cancer conducted in Manchester (see *H.E.J.*, May 1956, page 77), it is noteworthy that a report of a recent seminar for health visitors on cancer reveals similar views in a professional group.

The first session of the course occupied the afternoon and early evening of the first day, and consisted of a review of progress in the understanding of the nature of cancer, followed by a free group discussion which had the object of coming to a personal understanding of attitudes to cancer. This may be regarded as a therapeutic group session to free personal tensions and to gain insight into personal motives. Groups were asked to state frankly what they would do if they thought that they had cancer. A strong dislike of surgery was admitted, and eighty per cent of the members said that if they were told they had cancer, they would prefer not to do anything about it. Of the minority who would seek treatment, there was a strong preference for radio-therapy. When examining the deeper motives underlying these views, fear of anaesthesia was found to be more important than fear of surgery. It was interesting, however, to find that the general motivation underlying these views was the dislike of delay, difficulty of access and often the occasional indignity connected with seeking treatment in the ordinary way. It was felt that if cancer were organised as a special problem, as had occurred in the case of tuberculosis, and that if a cancer diagnostic centre were set up to which access could be had without formality, then all would be much more ready to seek advice and to go ahead to treatment. There was a general feeling that cancer represented a doom rather than a death.

TEENAGERS TALK OF LOVE*

A LITTLE more than a year ago at Carrot River, Sask. (population 801), the Rev. G. L. Toombs looked over his statistics and found that he had performed twenty marriages in his eighteen months as United Church minister of the town. Of these, three had been between minors, and three others, that he knew about, had been "forced." At least 30 per cent of these marriages, then, were ill-fated for lasting success. In his concern he recalled the poverty of supervised teenage activities, the popularity of wild dances outside of town and the frequent complaints of parents about their teenagers. While he well knew that this situation was not unique to Carrot River but was fairly constant throughout the country, nevertheless the Rev. G. L. Toombs decided that something should be done about it.

After various discussions with the United Church Session and with Dr. Keith A. Yonge, then Director of the Mental Health Clinic at Moose Jaw and now Assistant Professor of Psychiatry at the University of Saskatchewan, an inter-denominational committee was established with Dr. J. McCullough, the local Public Health Officer, as chairman and Mr. Toombs as secretary. On the committee were the Mennonite Minister, members of the town and municipal councils, the school principal and a member of the school board. An educational project gradually took form.

Billed as a four-day public health programme, the project was announced as "The Greatest Thing in the World: a series of talks, films and discussions on the greatest driving force in life." Posters were placed in the town and outlying areas; the weekly paper ran advertisements weekly for five weeks as well as articles in favour of the project; a mailing-list of all teenagers, 13 to 19, was circularised; the high school staff encouraged students to attend; the project was announced at every opportunity at local and district meetings. In all, some 1,600 people (twice the entire population of Carrot River) were invited by mail.

The plan was to have parents and teenagers meet together every evening at 8 when Dr. Yonge would introduce a topic and show a film. The adults would remain in the Town Hall with Mr. Toombs while the teenagers would move to the high school auditorium with Dr. Yonge. Adult discussion leaders had been

*Reprinted from *Canada's Health and Welfare*, December, 1955.

shown the films and were coached to get discussion going but not to lead it.

How was this programme going to work? While everybody was in agreement it should be tried, nobody was unaware of two great difficulties: the "independence" of teenagers and their disinclination for advice, and the prevailing reticence on the part of both parents and teenagers to discuss all aspects of love—biological, psychological and spiritual.

The series started on Wednesday, October 27. One hundred and forty-three parents and one hundred and forty-two adolescents crowded the Town Hall while helpers hustled in nail-kegs and planks for improvised benches. Dr. Yonge, taking as his subject "Hearts are Breakable," talked about various real cases of unhappy love relationships. His talk raised many thorny questions, but he made no attempt to offer solutions. A film was shown and the audience separated into groups for discussion, parents and teenagers separately. Now was the moment to test the plan: would people talk about love in public meeting?

They talked. They talked in meeting and they went on talking in cafés and homes. They had not learned anything they did not know the first night, but they had discovered that the subject of man–woman relationships could be discussed without restraint. The next night they were back and brought their friends to hear and discuss "What Makes People So Different?"

Interest grew as the four days went by. Requests for specific advice on such problems as when children should start dating, the time they should come home from parties, rules for petting and so on were referred back to the parents for discussion with their own children so that families and the community as a whole should set up their own standards. Gradually the principle emerged that good understanding within the family is more important that fixed rules and regulations.

In all 585 people registered for one or more meetings, and 22 per cent of them attended all four evening sessions—in spite of the fact that Saturday, October 30, was Hallowe'en!

The next day, Sunday, follow-up services were held in all the churches of the area.

So the Carrot River Conference drew to a close. What had the citizens of this 800-population town achieved? It had not tried to spread a knowledge of facts but instead hoped to change the atmosphere of community relations. Had it succeeded?

A follow-up questionnaire brought 214 responses. To the question "How do you feel about this project as a whole?" the most popular response was "Above all expectations." Under the heading "Things I learned," parents wrote, "I learned to be more understanding with my teenager," "I learned that I am not always right," "I learned that I really don't know myself as well as I

thought, and most people feel the same." Teenagers wrote, "Parents and teenagers should get together and discuss problems," "I learned that people certainly can be honest with one another about things we don't usually talk about," "I am not as understanding as I should be toward my parents," "I learned that I am selfish in loving some people."

A new spirit was born in Carrot River. The combination of local co-operation, careful planning and inspired leadership had succeeded in bringing into the open one of the most frequent sources of family tension and pointing the way to greater mutual understanding. A small town at "the end of the line" in the north-east of Saskatchewan's grain belt demonstrated to communities everywhere that emotionally-charged subjects can be talked over in amity and that "the other fellow's" view is worthy of consideration.

As one fourteen-year-old summed it up: "I always thought that you couldn't talk about these things. Why, there's nothing to it!"

DENTAL DECAY CAUSED BY STARCHY FOODS

A report from the Medical Correspondent of *The Times*, published on July 2, stated:

"A high incidence of dental caries in young African children, in striking contrast to the healthy state of their mothers' teeth, is revealed in a report from Kampala, published in the *East African Medical Journal*.

"The incidence of caries was 20 per cent among Baganda children, 28 per cent among Luo children, and 11 per cent among Banyaruanda children. Among European children of the same age in Kampala the incidence is 25 per cent. The variation in the incidence of caries is correlated with the habit, which is becoming increasingly common, of the African children eating manufactured starchy foods, such as biscuits and cake, in between meals. In the old days, and still to a large extent in country areas, sugar cane and fruit would be the only snacks obtainable in between meals.

"The Luo children, with the highest incidence of caries, live in the town and tend to eat more manufactured food, whereas the Banyaruanda children, whose parents are very poor and buy virtually no food other than sugar and tea, had a low incidence of caries."

FLUORIDATION: A STUDY OF THE ANTI-SCIENTIFIC ATTITUDE*

By BERNARD AND JUDITH MAUSNER

MANY people, particularly scientists, believe that we are suffering in the U.S. from a national epidemic of irrationality—what Senator J. W. Fulbright of Arkansas has called the "swinish blight of anti-intellectualism". The current outbreak has expressed itself in many manifestations, but they are reducible to two well-recognised symptoms: a deep distrust of "intellectuals" and rejection of ideas or discoveries that conflict with entrenched beliefs. Can we do anything more than name the disease and describe its symptoms? It would be helpful to have more data on the causes of the malady and possible methods of combating it. This article will report the results of a case study which may offer some light. The place of the study was the town of Northampton, Mass., and the occasion was a dispute over fluoridation of the town's water supply.

Fluoridation is an excellent example of the careful application of scientific knowledge to a problem. As David B. Ast, director of the Bureau of Dental Health in the New York State Department of Public Health, has said, no other public health measure has ever been so thoroughly studied and tested before it was introduced. Ever since 1908 it has been observed that people living in regions where fluorides occur naturally in the water have a remarkably low incidence of tooth decay. In 1945 controlled studies of artificial fluoridation of the water supply were started in three communities: Grand Rapids, Mich., Newburgh, N.Y., and Brantford, Ontario. The nine-year results of these tests, plus many others, have convinced the scientists who have investigated the matter that artificial fluoridation can greatly reduce dental caries among children who drink the water during their teeth-building period and that the procedure is perfectly safe. Fluoridation has been recommended by an impressive list of scientific organisations, including the American Medical Association, the American Dental Association, the National Research Council and the U.S. Public Health Service. And more than

*Reprinted from *Scientific American*, February 1955, **192**, 2, pp. 35–39.

1,000 communities in the U.S., with a total population of more than 17 million, have adopted it so far.

However, from the beginning there has been opposition. The opponents, mostly laymen but also including a few scientists, have formed two national organisations—the National Pure Water Association and the National Committee against Fluoridation—and many local committees to fight adoption of the idea. The issue has twice been argued before committees of Congress. In 57 out of 104 communities where the question has been voted on by the electorate, the opponents have defeated fluoridation.

A content analysis of the anti-fluoridation argument shows that it has three main themes : (1) fluoridation is an experiment which has not proved its value and may hold unknown dangers ; (2) fluorides are poisons ; (3) treatment by public agencies of the water that everyone must drink is a step in the direction of socialised medicine and an invasion of individual rights.

As for the first of these objections, public health and dental authorities believe that the effectiveness of fluoridation has been so well proved that it need no longer be considered an experiment ; objections that the case has not been proved, they feel, betray a lack of understanding of epidemiological research. Many people find it difficult to accept conclusions based on statistical analysis rather than on laboratory or clinical " proofs ". The most careful evaluation to date of the supposed dangers of fluoridation, carried out by a committee of the St. Louis Medical Society, found no good evidence that it is dangerous. Populations who have been drinking fluoride-containing water for some time show no unusual death rate or incidence of degenerative disease, cancer or children's bone fractures—all dangers mentioned by the opponents.

The poison theme is based on a failure to appreciate that a substance may be safe or even beneficial in small doses though it is toxic in large amounts. Opponents of fluoridation have pointed out that sodium fluoride is a rat poison and fluorine is a component of deadly " nerve gases ". This theme has inspired some bizarre, irrational fears. It has been suggested that in the event of war saboteurs could poison our water by dumping large quantities of fluoride into the reservoirs from the fluoridation apparatus. Actually it would be hard to imagine a more cumbersome method of sabotaging water supplies. Enormous amounts of fluoride, more than is ever normally stored at a water-treatment station, would be required to produce a concentration high enough even to mottle the teeth. Despite these sober facts, the lurid picture of a saboteur poisoning the entire population by pulling a switch has apparently been easy to evoke. One anti-fluoridation pamphlet has suggested that fluoridation is a part of a subtle conspiracy on the part of our enemies to " paralyse,

Questionnaire Items	Agree		No Opinion		Disagree	
	Pro	Anti	Pro	Anti	Pro	Anti
Scientific bodies like the American Dental Association and the U.S. Public Health Service are the best sources for facts about fluoridation	92	50	6	15	2	35
A good reason for opposing fluoridation is that it infringes on individual rights	25	79	12	7	63	14
Fluoridation is *not* a step toward socialised medicine	65	39	7	19	28	42
Dentists will profit from fluoridation because it mottles (discolours) the teeth	9	23	18	43	73	34
Since fluorine is only beneficial to children, everybody should not be forced to drink it	25	85	12	6	63	9
Fluoridation has been a success wherever it has been tried	45	6	49	37	6	57
Chemical industry is for fluoridation even though it may be dangerous because they will be able to profit from selling their fluoride wastes	10	52	24	25	66	23
Voting on fluoridation is as sensible as voting on the use of penicillin in treating disease	61	39	16	16	23	45
People should not be forced to drink something without their consent	65	93	10	3	25	4
The benefits of fluorine could *not* be obtained by having dentists give it directly to children in the schools	36	21	32	34	32	45
The Water Commissioners were taking advantage of their position in starting fluoridation without consulting the public	31	81	9	6	60	13

Interviews of the Northampton study were based on these 11 statements. The 397 people interviewed a week before the fluoridation vote were asked (1) to give their opinion of each statement and (2) to indicate whether they intended to vote for or against fluoridation. The responses of the pro- and anti-fluoridation groups are separated at the right in per cent.

demoralise and destroy our great republic from within" by undermining us with a nerve poison in the water.

The third argument, that fluoridation is an invasion of individual rights, raises a complex issue. In innumerable public statements the opponents of fluoridation have called it compulsory mass medication. However, so are compulsory smallpox vaccination and many other modern public health measures. The proponents of fluoridation consider that the invasion of individual rights involved in compelling everyone in a community to drink fluoridated water is minor when weighed against the incalculable benefits to our next generation from the reduction of dental disease.

There has been a host of other objections to fluoridation : its cost (about 10 cents per person per year), the allegation that it makes water taste foul (in the small amounts used the fluorides

are actually tasteless), the complaint that it kills goldfish and makes dogs and cats ill (actually there is no evidence of harm to animals). The power of suggestion has been vividly demonstrated on several occasions. For instance, in New York's Westchester County and two or three other localities the announcement that the water would be fluoridated was followed by a flood of complaints of bad-tasting water, sudden aches and pains, and dead goldfish and dogs—even before any fluoride was put into the water! A witness before a Congressional committee declared that he had fainted from drinking two cups of coffee made from fluoridated water.

In short, the objections to fluoridation, however unrealistic or unfounded, have deep psychological roots. To what extent does the general public share the fears and attitudes of those who have campaigned against fluoridation? It was this aspect that we set out to investigate in Northampton, where the issue came to a referendum. Before the election we (Allan Leavitt, Sidney Robbins and Bernard Mausner) surveyed the attitudes of leaders of the community and a representative sample of the city's population.

The fluoridation controversy in Northampton had followed a typical course. A local committee of the Dental Society had recommended fluoridation after an investigation of its merits made at the mayor's request, and the City Council had then held hearings, voted approval of the step and appropriated money to carry it out.

Opponents of fluoridation continued to argue against the practice, and the foremost objector, a professional chemist, actually installed a still in his home to prepare fluoride-free water. He was elected mayor some months later, and on taking office attempted to halt appropriations for fluoridation. An *ad hoc* anti-fluoridation committee obtained the signatures of more than 10 per cent of the town's voters on a petition demanding that fluoridation be stopped. A local judge issued an injunction against it. The injunction was loosely worded; it banned the addition of all chemicals to the water. The water commissioners therefore halted chlorination as well as fluoridation, and one melodramatic evening issued a radio appeal to the public to boil drinking water. This literal interpretation of the injunction was greatly resented by the public. The injunction was eventually voided, but by that time opponents of fluoridation had succeeded in having a referendum on the subject placed on the ballot for the following November.

The pro-fluoridation leaders, mainly dentists, felt that the weight of scientific evidence and authority was so strong that they did not need to campaign intensively; moreover, they were justifiably unwilling to make enemies in the town. The anti-

fluoridation forces, on the other hand, continued vigorous activity. They kept up an active telephone and letter-writing campaign. The night before the election the local newspaper carried two advertisements. One, signed by a majority of the dentists and physicians in town, soberly explained the virtues of fluoridation and urged its adoption. The other, sponsored by "The Northampton Non-Political Anti-Fluoridation Committee", was couched in these terms :

"*Do you know that :*

". . . Fluoridation is mass medication regardless of the needs or wishes of the people. . . .

"Fluoride is a poisonous waste from aluminium manufacture. It is dangerous and costly to dispose of. . . .

"Fluorine is a powerful poison that gradually deprives the body of calcium whether children or adults, with ill effects on organs as well as bones. . . .

"Fluoridation could play into the hands of our enemies. America is too big to be conquered by invasion, but with fluoridation machines at the reservoirs, the population in important centres could easily be wiped out or made non-resistant. . . .

"J. Edgar Hoover, head of the F.B.I., has warned the public to be on guard against any attempts at poisoning of public water supplies. (A.P. Dispatch, February 27, 1951.)

"*Think this over.*

"*Let us keep Northampton's water pure and Northampton safe ! Vote 'No' on the fluoridation referendum on November 3, 1953*".

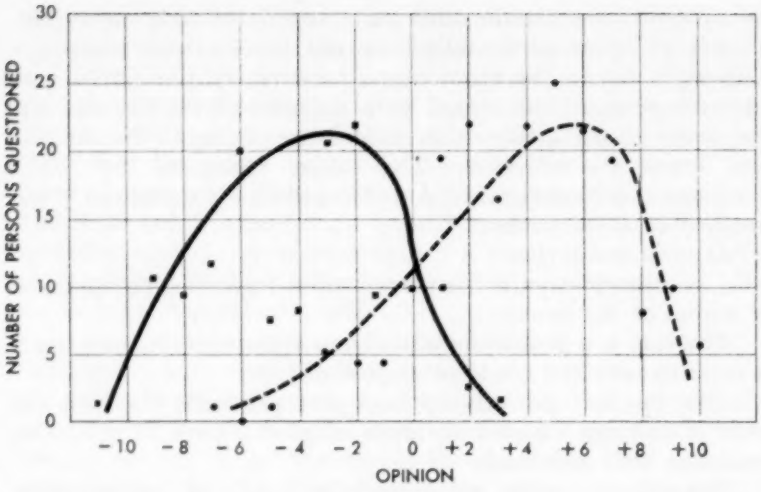
Fluoridation was defeated by a vote of two to one.

In our opinion survey, made during the week before the election, we interviewed a sample of 397 potential voters, selected on a quota basis to give accurate representation of the sexes and age and occupational groups in the town. That our sample was indeed representative was proved by later tests.

The persons interviewed were asked their opinions on pro- and anti-fluoridation statements representing the major themes in the controversy ; on each item the respondent was asked to express his opinion on a five-point scale : agree strongly, agree, no opinion, disagree, disagree strongly. He was also requested, at the end of the interview, to indicate how he expected to vote.

The questionnaire was designed to answer two questions : first, how pro- and anti-fluoridation attitudes were distributed in the population ; second, what role each theme played in determining how people would vote.

Who were against fluoridation ? They were predominantly people of the older age groups, people without children under 12, people of the lower income brackets and middle- or lower-class occupations. Support for fluoridation came mainly from

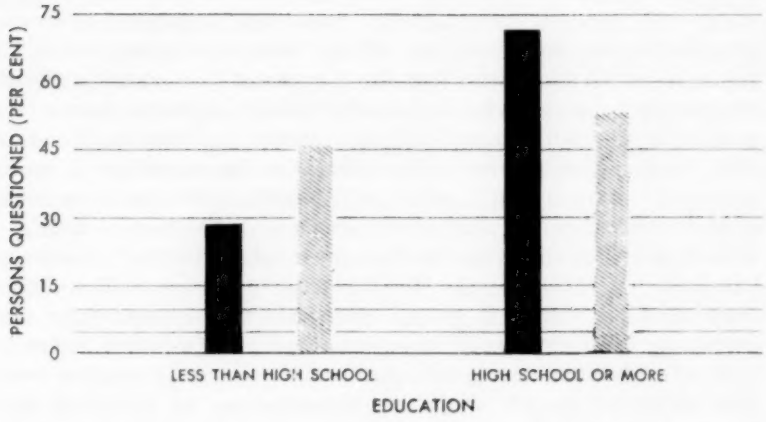


Attitude toward fluoridation was derived from opinions expressed during the interview. Scores in the minus direction indicate pro-fluoridation opinions ; those in the plus direction, anti-fluoridation opinions. The scores of those who expressed their intention of voting for fluoridation are shown by the continuous line ; the scores of those who expressed their intention of voting against it are shown by the broken line. This demonstrates that opinions were consonant with voting intentions.

the younger groups and those in professional, managerial and other white-collar occupations. One of the most striking differences was in education. A large proportion of the anti-fluoridation voters had failed to finish high school. Among high-school and college graduates, the majority favoured fluoridation. Yet there was a large number of graduates, even some with post-graduate education, who accepted the anti-fluoridation arguments.

Thus the demographic factors show two independent trends : (1) the younger people are more likely to be for fluoridation than older ones, probably in part because they are more likely to have children under 12, and (2) the people of higher education, occupations and incomes are more likely to be for it than those of lower social status.

The pro- and anti-groups were significantly different in their responses to specific arguments or statements about fluoridation. The disagreement between them was especially clear-cut on the question whether fluoridation had been a success wherever tried. The anti voters overwhelmingly refused to accept reports of its success or to accept scientific organisations as the best authorities on fluoridation. Many of them felt that public health officials, dentists and the chemical industry were in a conspiracy to impose the measure on the public ; they agreed with the statements that



Other elements were also correlated with voting intention. In both of these bar charts the percentage of people who expressed their intention of voting for fluoridation is shown by the solid bar; the percentage of people who expressed their intention of voting against it, by the shaded bar.

"dentists will profit from fluoridation because it mottles the teeth" and that the "chemical industry is for fluoridation, even though it may be dangerous, because they will profit from it".

The question concerning acceptance or rejection of scientific authority is what especially interests us here. Almost 95 per cent of those approving fluoridation accepted scientific organisations as reliable sources of information on the subject. Among the anti voters those with little education tended to reject scientific authority. However, in the anti group two-thirds of those with better than high-school education professed to accept the authority of the scientific organisations. Their opposition to fluoridation suggests either a failure of communication from the

scientists, which is unlikely in this well-educated group, or an unconscious rejection of these sources. The deciding factor may be not the specific content of education but rather the set of attitudes toward scientists developed during schooling.

The anti-fluoridation voters on the whole seemed to be more impressed by the few deviant scientists and professional people who opposed fluoridation than by the organised medical and scientific groups that favoured it. Some, indeed, as we learned in a later survey, voted against it under the impression that "dentists and chemists say it . . . is bad for children's teeth". In any case, a layman, not being trained to evaluate authorities, generally must commit an act of faith in choosing among conflicting points of view. This suggests that a major function of education should be the establishment of criteria, if these can be defined, for weighing authorities.

We were struck by the pervasive attitude of suspicion among those who opposed fluoridation. They were suspicious not only of scientific organisations but of the scientists themselves. To them, as to all those who fear the "egghead", it seems perfectly reasonable to suppose both that scientists would lend themselves to a conspiracy with enemies of our country, and that, at the same time, they would permit themselves to be used by a giant monopoly. During the campaign in Northampton (as elsewhere) it was rumoured that the American Dental Association and the U.S. Public Health Service had been subverted by the Aluminum Company of America; the Dental Association was said to have received large research grants from ALCOA as the price for favouring fluoridation. Thus even those opponents of fluoridation who did not see a saboteur lurking in every corner were able to invest it with an odour of conspiracy by claiming that fluoridation was being promoted for profit.

The fear of conspiracy, which has been such an important component of the anti-fluoridation cause, is often strengthened by the manner in which fluoridation is introduced. Usually it is arranged primarily in conferences between local dentists or public health authorities and town officials and technicians; public hearings are often held, but they rarely achieve wide publicity. The anti-fluoridation forces often move into the battle with full vigour only after fluoridation has been started. It is hardly surprising that they are able to convince a large portion of the population that fluoridation has been "put over" on them. In Northampton, for instance, 82 per cent of the antis, and even 32 per cent of the pros, agreed with the statement that the water commissioners had taken advantage of their position to start fluoridation without consulting the public. This despite the fact that there had been public hearings and an appropriation by the town council before treatment of the water began. The same

sequence of events apparently occurred in Williamstown, Mass., in Seattle and in Cincinnati. The Cincinnati case is especially interesting because one person, a radio announcer, succeeded in creating violent anti-fluoridation sentiment in a city in which fluoridation had been accepted without much debate.

The case of Mt. Clemens, Mich., offers a contrast. There the director of water purification, on deciding that fluoridation was a desirable procedure, brought into play the active co-operation of such groups as the Parent–Teachers Association, the District Health Service, the school health services and local U.S. Public Health Service officials. The climate of public opinion was carefully prepared. Speeches presenting the facts were made at a large number of public meetings. There were demonstrations of the virtues of fluoridation by the P.–T.A. in a local home exposition. When fluoridation was introduced, there was no opposition, and so far as we have been able to determine there has been no opposition since.

Undoubtedly for many of the 1,000 communities in which fluoridation is now a routine matter, such careful preparation was not necessary. This suggests an interesting research project : to compare communities which have erupted into a volcano of protest over fluoridation with those in which it was adopted with relatively little controversy.

Can scientists draw any lessons from the anti-fluoridation outbreaks ? The strength of the opposition to fluoridation can be attributed to three important factors. Firstly, the anti-fluoridation arguments are understandable, easy to follow. Their weaknesses are often difficult for a layman to grasp. Secondly, these arguments are grounded in some of the most widely held ideas and emotions of our culture. In their appeal to respect for individual rights, to fear of poison, to a watchful conservation of public funds, they ring a bell for most people. Thirdly, they are clearly related to the *Zeitgeist,* the current suspicion of scientists, the fear of conspiracy, the tendency to perceive the world as menacing.

In contrast, the proponents of fluoridation have all too often ignored public psychology in presenting their case. They have relied too heavily on the fiat of organised science and have tended to dismiss opponents as " crackpots " and to deride their arguments. The greatest flaw has been the failure to prepare the public adequately. As a result there develops a polarisation of attitudes which makes it very difficult to change opinion.

While it would be foolhardy to attempt generalisations about anti-intellectualism on the basis of this one phenomenon, our analysis of anti-fluoridation sentiment does suggest a pattern for the study of other manifestations. In examining any anti-intellectual movement we can ask what kinds of people participate in

it, what fundamental motives and thought processes support it. If the fluoridation case is any indication, we shall find the motives understandable, if irrational. In our attempts to overcome anti-intellectual feelings we can try to avoid the errors of relying on prestige, of name-calling and of failing to reach people before issues become polarised. Unfortunately the pressure of events often makes this last step impossible. However, an attempt, at least, to understand anti-intellectualism and to meet it on its own ground should make it easier to defeat.

PREVENTING HEART DISEASE

A PROGRAMME of research into the cause and prevention of heart disease should be undertaken on international lines under the auspices of the World Health Organization, according to the recommendations made by the W.H.O. Study Group on Atherosclerosis which met last year in Geneva, under the chairmanship of Dr. Herman Hilleboe, Commissioner of Health for New York State.

The disease recommended for special investigation, "because of its paramount importance as a public health problem" is ischaemic heart disease, defined by the W.H.O. Study Group as "the cardiac disability, acute and chronic, arising from reduction or arrest of blood supply to the myocardium . . . the result of disease processes in the coronary arterial system. The main pathological processes involved are atherosclerosis and thrombosis of these vessels."

The most clearly recognised types of ischaemic heart disease are myocardial infarction and angina pectoris.

The Study Group admitted that there is as yet no clear or scientific evidence to show that any particular factor causes this disease or contributes to its development. They agreed, however, that quite a number of factors are probably at work simultaneously, and that their action differs according to the individual and to his social or ethnic group.

"Striking and challenging differences" are observed from one country to another, the W.H.O. Study Group noted, but the interpretation of their significance is difficult. In the U.S.A., U.K. and Sweden, many more men than women die from ischaemic heart disease between the ages of 40 and 60, but, in the Netherlands, female mortality is higher.

Diet may be an important factor, as well as obesity. But there

are populations containing many obese individuals with far less ischaemic heart disease than in the U.S. and U.K., for instance. Calculation based on U.S. life insurance data indicate that, if all markedly over-weight persons were removed from the U.S. population, the mortality from ischaemic heart disease in the remainder would still be very much higher than in some other populations, for instance those of Norway, Italy, or Japan, even though obesity is by no means rare in the latter countries.

The Group also noted that populations on low-fat diets appear to suffer a relatively low incidence of atherosclerosis and ischaemic heart disease, and that in Europe, during the war, the reduction of fat consumption was paralleled by a lowering of mortality from heart disease.

Occupation and social status may also be factors ; professional and business men suffer from ischaemic heart disease more frequently and more severely than people in more physically active jobs. The Group added that high blood pressure is often evidence of cardiac damage, but that this association is by no means universal.

Declaring that the search for a possible meaningful association between ischaemic heart disease and diet or physical activity is one of the most difficult tasks in medical research, the Study Group recommended that uniform procedures and methods of observation and recording should be established, and indicated the lines of research to be followed in pilot studies to be undertaken under the sponsorship of the World Health Organization.

The relationship between heavy smoking and cardiovascular disease is becoming more obvious, the Study Group found. High alcoholic consumption is also connected with an excessive death rate, and statistics gathered in several countries have shown that barmen, for instance, are especially prone to cardiovascular and kidney diseases.

Finally, the Study Group said that, in the present state of knowledge, the only advice it could give on the prevention of heart disease was: "Be moderate in all things." This advice of moderation, the experts held, has the real value of being directed at the same time at such conditions as obesity, alcoholism, heavy smoking and over-indulgence in many other activities. And, concluding on an optimistic note, the W.H.O. Study Group stated that the outcome of the studies and researches it has recommended should enable preventive programmes to be established in the not too distant future.

WARMING AND VENTILATION IN BRITISH LIVING ROOMS

By T. C. ANGUS, D.Sc., A.M.I.E.E., M.I.H.V.E.
Department of Applied Physiology,
London School of Hygiene and Tropical Medicine

THE open fire has for long been the object of criticism not only on account of its inefficiency but also on the score of its failure to ensure comfort ; but our affection for this centre of family life is very real, and many of us would regret to see its use brought to an end. It should be realised, however, that a great many able workers have been active in improving domestic fires and stoves and that their efforts have so far received little support or recognition from those most nearly concerned. It may be stated that with modern appliances and the construction of houses with adequate heat insulation, it is possible to warm the two main rooms of a dwelling house as effectively as would be accomplished by central heating, with no more expense in fuel consumption and at a considerably lower initial cost.

The two adjoining diagrams show the main features of a room warmed by an old-fashioned open fireplace, and one fitted with the new type of free-standing fireplace, or a closeable stove. In the first instance (Fig. 1) the fire is in a well-like depression with very little of its radiant surface (the main source of useful heat) exposed to the lower parts of the room. The result of this is that much heat is projected at the ceiling where it is of little use, and, if the back of the fireplace is flat, some radiant heat is even directed up the chimney. In an experimental room not many years ago we found that, with a type of kitchen–living room combined heating and cooking range, the ceiling temperature reached 90° F. on a winter's day, whilst the floor remained cold. Another drawback of the old open fire is that it wastes much heat by over-ventilation. It has been found that an open fire of conventional pattern can take as much as 6,000 cubic feet of air per hour from a room which, of course, has to be replaced by fresh cold air. By accepted standards four people require 2,400 cubic feet per hour. The new types of fire with much smaller throats to the chimney take very much less air from the room. An adjustable damper, or register, should be fitted in the chimney.

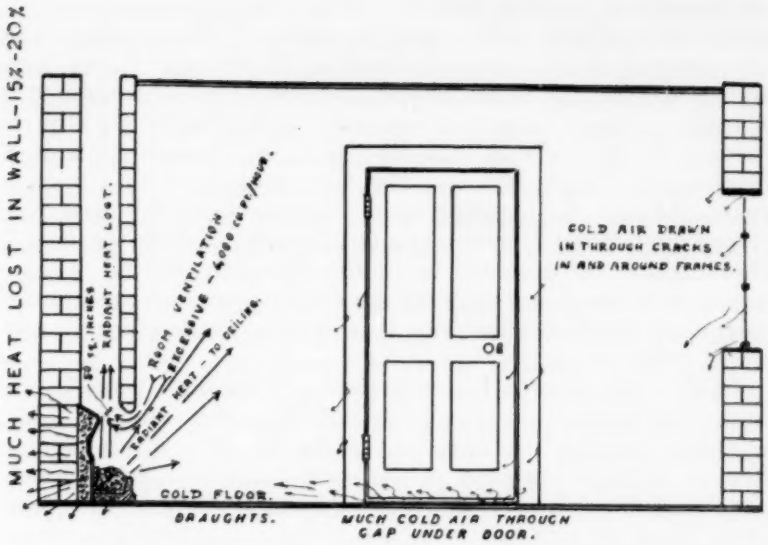

MUCH HEAT LOST IN WALL-15%-20%
80 SQ. INCHES RADIANT HEAT LOST.
ROOM VENTILATION EXCESSIVE - 4,000 CU. FT./HOUR.
RADIANT HEAT - TO CEILING.
COLD AIR DRAWN IN THROUGH CRACKS IN AND AROUND FRAMES.
COLD FLOOR.
DRAUGHTS.
MUCH COLD AIR THROUGH GAP UNDER DOOR.

Fig. 1.—Living room with ineffective fire. Heat lost up chimney, uncontrolled draughts.

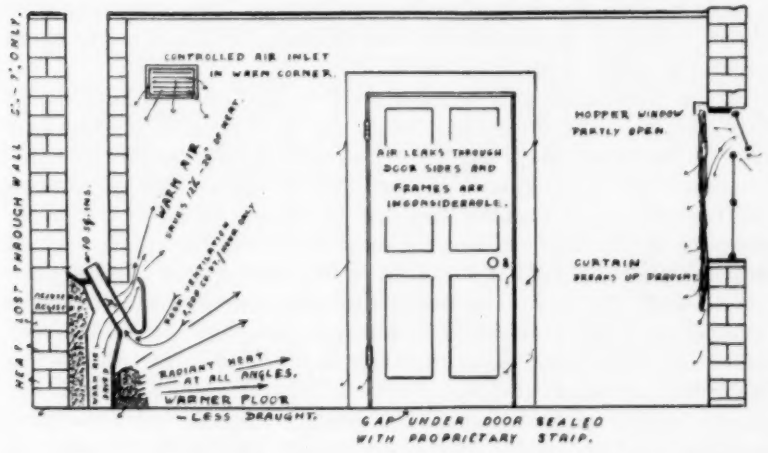

CONTROLLED AIR INLET IN WARM CORNER.
HOPPER WINDOW PARTLY OPEN
AIR LEAKS THROUGH DOOR SIDES AND FRAMES ARE INCONSIDERABLE.
CURTAIN DRAWN UP BEHIND
RADIANT HEAT AT ALL ANGLES.
WARMER FLOOR
—LESS DRAUGHT.
GAP UNDER DOOR SEALED WITH PROPRIETARY STRIP.

Fig. 2.—Living room with free-standing fire. No excessive ventilation, draughts reduced.

Then much heat is lost through the solid surrounds of the conventional fireplace by conduction; and this is particularly true if the fireplace is built into an outer wall.

Another fault of long standing is that seldom has any provision been made for allowing air needed by the fire to enter the room without causing a draught. Fig. 1 shows not only how much of

the heat of the burning coal or coke may be wasted by an unsuitable fire, but how comfort may be destroyed by draughts—and this fault is by no means confined to old houses. It has been found that the gap under an ordinary door represents some 7 to 8 square inches of free area—as much as is afforded by a terra-cotta air brick, and that with the "pull" of an open fire a most unpleasant draught results. The air coming in from a passage is usually cold and, coming in as a stream along the floor over the occupants' feet, has the worst possible effect. If the day is cold the window will probably be tightly shut and cold air will be drawn in through the cracks of the window, not only around the casements and sashes but also between the window frames and the bricks.

In Fig. 2 is shown a better method of warming a room by an improved open fireplace, or by a closeable stove. The first thing to note is that the high open bars of the fire allow direct radiant heating of the lower parts of the room and of the floor. Then the throat opening into the chimney is much smaller—10 square inches as against 50 square inches of the conventional fireplace. This reduces the draughts along the floor and in the room generally, and saves a great deal of heat which would otherwise go up the chimney as warm air. And the chimney temperature will be higher, which is in itself a good thing. Note that the iron throat is closely cemented into the chimney by an air-tight sheet or diaphragm. This is essential.

In a well warmed and ventilated room the large opening where the bottom of the door opens over the floor should be closed by one of the many proprietary devices now on the market for this purpose. In practice it is not possible to reduce this gap to less than $\frac{1}{4}$ inch when making and fitting a door, to avoid the likely rubbing of the door on floor or carpet. Thus a major source of uncomfortable draughts exists in many rooms, and this is often overlooked. It should be noted that the draughts that come in around the sides and top of a door are generally much less considerable than those from the bottom, the top and sides being made with a rabbet or step. Some air also comes in through the cracks which occur between the timber framing of doors and windows and the walls, and if no proper provision is made for the supply of fresh air all draughts from such cracks are accentuated.

To supply the necessary air to the fire and for ventilation a partly-opened hopper window is good. At night this may be covered by a good curtain to help break up entering currents of cold air and mix it with the warm air of the room before it reaches the floor. A good air-brick or natural ventilator may well be used. This should be placed either beside the fire or high up in an outer wall, and in any part where a pocket of hot stagnant air would

naturally form. Then if the "pull" of the fire is sufficient, fresh air will come in and be tempered by mixing with the hot air in the pocket. But if, for instance, a door is left open the hot air from the stagnant pocket may find its way out through the air brick. To prevent strong winds blowing in through such natural ventilators, which in many instances causes the occupants to block them up altogether, proprietary wall ventilators are made which automatically reduce the flow of air to a reasonable level when the wall in which the ventilator is fixed is subjected to winds.

The efficient use of heat obtained from fuel used to warm our dwellings still arouses little interest in this country, and results of much of the research carried out in recent years have failed to be applied to new housing construction. In May 1956 the Institute of Fuel held a two-day Conference on "The Special Study of Domestic Heating in the United Kingdom—Past and Future." An opening paper read by Sir Alfred Egerton, F.R.S., was followed by 45 other papers by specialists in the many aspects of the subject, but, so far as we are aware, not one reference to this Conference appeared in the daily press.

The importance of the subject may be measured by Sir Alfred Egerton's comments arising on Chapter 1 of the 1945 report[1]:

> "... it is more important than ever to become efficient in the methods of heating our homes and factories, if the products of this country are to compete in world markets. Otherwise the cost becomes a perpetual drag, and the standard of living will drop. Energy used efficiently has been shown to be directly proportional to productivity."

Again, to quote Sir Alfred:

> "The design of buildings with a view to reducing heat loss is, I consider, of equal or even greater importance than actual efficiency of the heating appliances ... in this country there are millions of detached and semi-detached houses of very low standards of insulation and leaky to air and heat."
>
> "... The extra cost of insulation in new housing is negligible compared with the value of the advantage gained over the years—in fact, in a very few years."

There has recently been published an official guide to the heat insulation of buildings.[2] The Fuel Research Station at Greenwich tests, and lists, cooking and other heating appliances. This is a Government establishment and its services are at the disposal of the general public.

The British Coal Utilisation Research Association, Leatherhead, Surrey, is continually making researches into the improvement of solid fuel burning appliances; their publications are not generally available, but many of their fireplaces and other devices

are marketed by retailers and are to be highly recommended. The North Thames Gas Board, Watson House, Fulham, carry out continuous research for the improvement of gas-fired appliances. The use of heavy oil for domestic heating is receiving attention (and is already well under way in the United States of America). The Shell Mex and B.P. Company, Ltd., are concerned with developments here.

Background Heating

For comfort in this country some system of warming the whole house, or rather of preventing any part from becoming really cold and damp in winter is ideal. In the Egerton Report[1] 50° F. to 55° F. was recommended for halls, passages, etc. If all parts of a house can be kept always at such a temperature, the sense of cold and damp when entering a room is avoided and a very small fire will quickly make for comfort when people are sitting or resting ; when a coal or gas fire is lighted in a room which has been unused for some days in winter it may take several hours before the room is comfortably warm. Workers from the British Coal Utilisation Research Association have recently shown[3] how this background warming may be accomplished, using heat from the same boiler that heats the domestic water supplies. By using a pump to create forced circulation (as opposed to thermal circulation) quite small pipes may be used to supply radiators.

Warm air systems have long been used in North America[3] ; they are now being introduced into this country on a small scale. In the forms proposed here, air is heated by passing it through heat exchangers by means of a fan, and then distributed to the various rooms through suitable ducts. Much remains to be done to control unwanted ventilation through open fireplaces and building leaks.[4, 5]

Those interested in a large and complicated problem should consult the 310-page publication of the Institute of Fuel Conference[6] ; the accounts of the considerable discussions which followed are still in the press.

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ASSIGNMENT DICKENS AND THE ADOLESCENT

At a recent exhibition on adolescence organised at the Annual Conference of the Buckinghamshire Mothers' Clubs an interesting exhibit was designed to show the part played by Charles Dickens in alleviating the abuses of the early nineteenth century, and it is an interesting example of how the historical approach can be exploited in exhibition material. The following report was made by the Hon. Secretary of the club responsible for preparing the exhibit.

"In connection with the forthcoming Exhibition at High Wycombe, the Colnbrook, Horton and Wraysbury Mothers' Club has been assigned the task of preparing the section dealing with the work done by Charles Dickens to expose the conditions of the adolescent in his time."

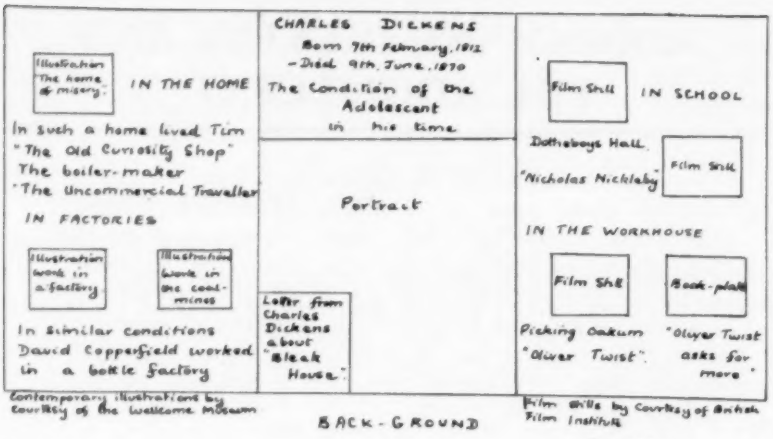
This announcement by our Chairman was followed by a lively discussion among our members, and it soon became evident from the wealth of ideas and suggestions that our main task would be to confine our section to the allotted space, namely one table measuring 6 ft. by 3 ft. and the wall space behind.

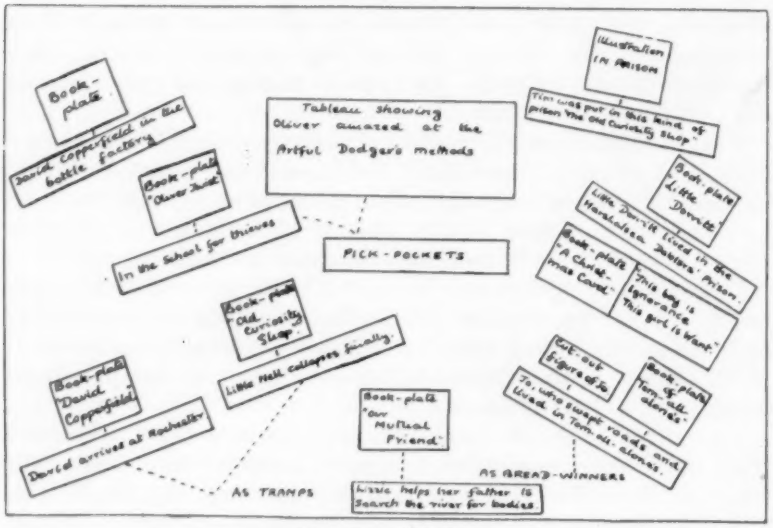
It was finally agreed that around a large portrait of Dickens, kindly lent by the mother of our Treasurer, the display should fall into the following sections: The condition of the adolescent in the home, in the school, in the workhouse, in the prison, as tramps and as bread-winners.

By courtesy of the Wellcome Museum we were able to illustrate home and factory conditions by contemporary prints. Film stills from *Nicholas Nickleby* and *Oliver Twist*, lent by the British Film Institute, showed scenes from school and workhouse. These, flanking the portrait of Dickens, formed the background.

The centrepiece of the table was a tableau from *Oliver Twist* showing Oliver being instructed by the Artful Dodger in the art of picking pockets. The setting of the bookshop was skilfully painted and mounted on cardboard by one member, whilst two others contributed the figures of the boys, all beautifully made.

To illustrate the adolescent bread-winner, yet another member contributed a charming cut-out figure of Jo the Crossing Sweeper. A trek to Charing Cross Road and many hours of bookshop browsing resulted in the collection of old editions from which the book-plates to illustrate the remaining groups were selected. The books, which included *Oliver Twist, David Copperfield, Little Dorrit, A Christmas Carol, Our Mutual Friend*, and *Bleak House*,



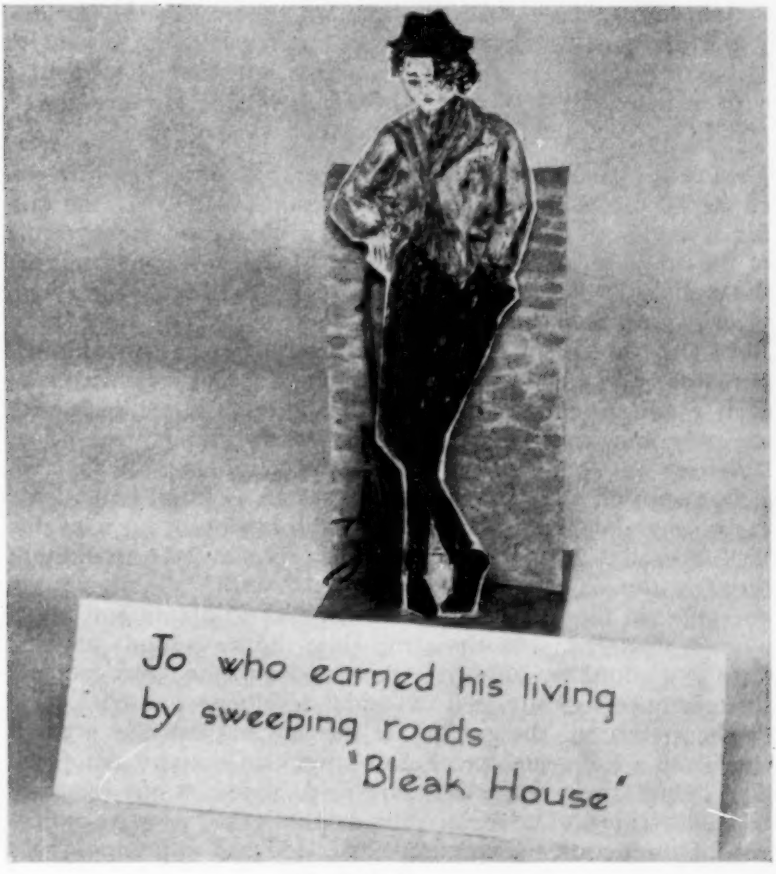

Book-plate
David Copperfield in the bottle factory
Book-plate "Oliver Twist"
In the School for thieves
Tableau showing Oliver amazed at the Artful Dodger's methods
PICK-POCKETS
Book-plate Old Curiosity Shop
Little Nell collapses finally
Book-plate "David Copperfield"
David arrives at Rochester
AS TRAMPS
Book-plate "Our Mutual Friend"
Lizzie helps her father to search the river for bodies
Illustration IN PRISON
Tim was put in this kind of prison "The Old Curiosity Shop"
Book-plate "A Little Domrit"
Little Dorrit lived in the Marshalsea Debtors' Prison
Book-plate "A Christmas Carol"
"This boy is Ignorance. This girl is Want."
Cut-out figures of Jo
Book-plate "Tom-all-alones"
Jo, who swept roads and lived in Tom-all-alones
AS BREAD-WINNERS
TABLE-TOP

were supported on rests constructed by an ingenious member from garden cloches and connected to the appropriate section titles by paper streamers. A place of prominence was given to the book-plate from *A Christmas Carol* showing the two children Want and Ignorance, which seemed to epitomise all Dickens' disclosures on every aspect of the problem.

A last minute scoop was a letter written by Charles Dickens concerning *Bleak House* which was kindly made available to us.

And so Assignment Dickens was completed and from our research and work on this task we had not only learned more of the efforts of this remarkable man, but had also participated in a most enjoyable experience of practical club work.

Oliver is amazed at the Artful Dodger's methods.



TEN YEARS OF F.A.O.

The Work of the Food and Agriculture Organization of the United Nations

By J. E. B. TURNER,
Ministry of Agriculture, Fisheries and Food

The tenth anniversary of the founding of the Food and Agriculture Organization of the United Nations fell on October 16, 1955. Though many of the problems of F.A.O. seem a bit remote from the English scene, most people will agree that in raising the health standards of the world its work is as important as that of the World Health Organization. Problems of nutrition throughout most of the world are the fundamental problems, and with increasing survival due to better preventive medicine, the nutritional problems in many areas are becoming more, rather than less, pressing.

Two of the aims embodied in the preamble to the Constitution of the Food and Agriculture Organization (F.A.O.) are the raising of levels of nutrition and standards of living and the bettering of the condition of rural populations. It follows, therefore, that the study of these problems has had from the beginning a high priority in F.A.O.'s activities and more especially since Lord Boyd Orr, the Organization's first Director-General, was himself particularly interested in them. Two of F.A.O.'s most successful early publications were in the nutritional field: one deals with the technique and interpretation of dietary surveys; the other, *Teaching Better Nutrition,* is a handbook still in wide demand.

Co-operation with other agencies was an essential part of the early programmes, but with the establishment in 1950 of the U.N. Special Fund for Technical Assistance, and its application through the Expanded Technical Assistance Programme, co-operation in the field became much easier to obtain and much more widespread. At the same time the new funds enabled F.A.O. to afford practical help in response to the many requests for assistance and advice from under-developed countries.

The nature of these requests has emphasised the gradual change that has come over F.A.O.'s work in the past ten years. The immediate pressure for more food, almost at any cost, was relaxed by 1953, to be replaced by emphasis on "selective expansion of production and consumption", designed to produce more

food in the areas where it is needed most. This again has brought a realisation of the urgency of problems of marketing and distribution, which might be expressed as the necessity to produce food at prices people can afford. With this has gone an ever-increasing stress not only on the production of more valuable foodstuffs, but also on the more economical and efficient use of the supplies that are available.

(*F.A.O. photo*)

Fellahin women are shown how to prepare a milk formula.

Reflecting this changed attitude, requests for help under the Expanded Technical Assistance Programme have shown a steady increase in a field which, previously, had received comparatively little attention, namely, Home Economics. Out of a total of 23 technical assistance experts working for F.A.O. in the nutritional field on May 31, 1956, 12 were home economists; work in this field under the regular F.A.O. programme has likewise increased.

Since this field of education is referred to by many different terms in various countries it is worth while defining what we mean by home economics. We can probably do no better than accept the definition recently given by an F.A.O. consultant who wrote: "Home Economics has now developed into a broad educational field in which the principles of economics, sociology, psychology and art as well as those of the physical and biological sciences should find application. It is concerned with the many problems facing the home maker in child care and development,

nutrition and health, consumer education, family and community relations".

It is evident from this definition that home economics assignments and those in closely related fields will seldom be conceived as isolated operations, but rather as essential parts of team projects, including, as often as not, representatives of other U.N. Specialised Agencies such as the World Health Organization, or local educational, medical or administrative groups. In Iraq, for example, F.A.O.'s field worker has been principally occupied in organising home economics teaching at the Queen Aliyah Women's College in Baghdad; in India, the assignment entailed advising and teaching at the Catering School of the All-India Women's Council, and the organisation of catering services and the operation of cafeterias; in Egypt, the team of which the home economist was a member included staff from three government ministries and W.H.O., as well as an F.A.O. agriculturist and a rural industries expert.

The Egyptian project, successful in some ways but in others disappointing, will serve to illustrate the sort of background against which most of F.A.O.'s work in this field has to be done, and it also shows many of the difficulties encountered and the methods of solving them. The demonstration was carried on in five villages in the Nile Delta, some 30 miles from Cairo, and within this area one village was selected for comprehensive study as a basis for planning practical nutrition and home economics education programmes. The expert, Miss Mary Ross, with two young Egyptian women as "counterparts", began by investigating the foods used, the methods of preparation, eating habits, child feeding practices, household equipment, and family life, in order to find what simple, inexpensive and acceptable steps might be taken to improve the diets and living habits of the people.

Naturally, the work started slowly. There were visits to the mayor of the village, leading sheiks, school teachers and major landowners, at which these people were encouraged to talk about the problems as they saw them, but the basic need was to establish good contacts with and to gain the confidence of the women, who, as is invariably the case, have the all-important say in domestic affairs, and whose success at goat, sheep or poultry keeping so often determines the living standards of the family. To gain the confidence of the women of the village, Miss Ross lived as close to them as she could, and then introduced a series of elementary, but to the villagers novel, improvements each of which brought an immediate and obvious benefit to the women. One innovation, for instance, was an improved stove using less fuel, emitting less smoke, with less fire risk, and providing a working surface at a convenient height. Others were a series

of vessels, porous and double-walled, for keeping food cool and a cot, simple and easy to make from local materials, yet strong enough to relieve the mother's mind of constant anxiety for the safety of her child. This was perhaps the most appreciated of all.

(*F.A.O. photo*)

A home economist vists Calioub, an Egyptian village.

The education programme itself began with the feeding of children in the 1–5-year-old group, weaning problems having a major interest for these village women. Mothers were shown how to dilute and boil buffalo milk and how to prepare the UNICEF skimmed milk powder provided through the health centre. Later, four-gallon oil cans were adapted as sterilising and storing units which would keep milk and food safe for 24 hours. The co-operation of other members of the F.A.O. team was sought to show how more economical use could be made of the milk, poultry, and rabbits on which much of the women's time is spent.

Another series of experiments concerned the improvement of maize bread by introducing various amounts of locally grown

pulses, though here the usual difficulties began to crop up. Beans, for example, are more expensive than maize and are not always available, whilst the yellowing caused by the addition of cottonseed flour made the bread less acceptable to the villagers.

Throughout the whole of the project, Miss Ross never lost sight of the need to train local people against the time when she would have to leave the district. This involved the selection and training of a small group of teenage village girls, as well as the instruction of nurses, midwives, women teachers and other village workers in the neighbourhood. Opportunity was also taken to train young medical men preparing to enter the government health centres.

In so far as it was successful, this experiment in demonstrating home economics at village level in a very difficult area owed a great deal to the sound initial approach and to the realisation that the expert must have something to offer that is of immediate and demonstrable benefit and that simplifies rather than complicates daily life. The use of cheap, easily available local raw materials, made into simple, sturdy, useful household articles, convinced the villagers that the expert had something worth while to offer and was the foundation on which the project was " sold ". Of course there were difficulties, and unsolved problems still remain. Amongst these are ways and means of continuing training and of ensuring that the enthusiasm aroused by the F.A.O. expert will not lapse now that she has left the area. Another problem lay in the fact that in the project area so much of the heavy work is carried out by the women, year in, year out, as a normal matter of course.

In addition, there were the physical problems inherent in all such schemes—the lack of adequate, safe water supplies, the extreme poverty of the villagers, the scarcity of fuel. Miss Ross noted, too, the growing popularity of factory-made soft drinks on which the villagers are all too ready to spend their scanty means. Illiteracy, curiously enough, was not a major problem as these village women, all of whom are illiterate, were able independently to express their needs and their desires; these included help with child care and feeding, improved medical services, and schools for girls as well as boys. This last aspiration emphasises the fact that home economics work in the underdeveloped areas has to be undertaken against a background in which resistance to real improvement in the lot of village women still persists, often for reasons which can be well understood when it is appreciated that the very idea of such improvement was revolutionary only a few years ago.

The F.A.O. worker in this field is by no means always a home economist, or even a nutritionist as such. Yugoslavia, for example, asked the Organization to help in getting more fish

(*F.A.O. photo*)

Children cleaning, preparing and cooking fish in a Yugoslav school.

into the diet, especially of inland urban populations. A fisheries economist was sent to the country, and it was he who worked out a way of approaching the subject through schools, introducing " fish weeks " whereby subjects connected with fish and fishing were introduced into the school curriculum at every possible point. This approach through the children was reinforced by a series of demonstrations, carried out by local home economists under the F.A.O. expert's supervision, of new and more economical ways of preparing, cooking and serving the fish already available. In Chile F.A.O.'s advice was sought in setting up a new bakery plant, as a pilot installation in the industrialisation of the country's baking industry. The aim of this industrialisation is to provide better bread at a cheaper price.

An aspect of F.A.O.'s work which has an indirect yet very definite bearing on public health problems are those forestry assignments concerned with the more economical use of timber in housing programmes, especially in those tropical areas where ample timber is available but at present little used. Not all these projects succeed ; in the Far East, for example, experiments were carried out to test a new type of chipboard, made from otherwise unusable tropical hardwoods, in pre-fabricated houses. Living in one of them, the expert was able to see for himself the extent to which heat and damp affected the new materials ; but although those originally evolved were not completely successful,

technical advances in the last two years may well have brought a solution to the problem. The cost of production remains high, however, and efforts are now concentrated on this difficulty.

The urgent need to introduce more animal protein into the diets of many peoples has inspired much of F.A.O.'s work ; recently, increased attention has been paid to the use of fish flour for this purpose. But more important by far are the widespread projects, usually carried out co-operatively between F.A.O. and UNICEF, to increase the consumption of milk and milk products. In general, these follow a common pattern. UNICEF provides skimmed milk in bulk and also, where necessary, plants for making or converting it ; F.A.O. backs up these operations by helping countries to develop an indigenous dairy industry. This work covers a vast field, ranging from soil conservation and grassland improvement to the development of better dairy stock, the improvement of milk quality, better and more hygienic handling methods at the dairy, and, finally, on the educational plane, encouraging people who have not previously been accustomed to milk drinking to accept it as a normal item of diet.

The opportunities for bringing improved nutritional standards to the peoples of the world are legion, but wherever the work is undertaken the primary need is to provide more of the essential foods at a price that can be afforded by those who need them most.

The illustrations on pages 149 and 150 are reproduced from *Better Family Living*, a bulletin published by F.A.O. for use in the Arab countries of the Middle East. Here is a translation of the text :

(Page 149) " Aziz and Hoda do not play in canals or ditches, where they get dirty. Mother says: 'The dirty water in the canal will cause sickness. I want you to keep healthy.' Father made enough slippers or sandals for all the family to wear, all the time. These will help to protect them from getting bilharzia. If one of the family gets sick they visit the Health Centre or see the public nurse or doctor." (Page 150) " Care of nails and hair. Hoda cuts her nails short. She knows that dirt stays under long nails and gets into the food. Once Hoda got lice in her hair. She felt unhappy. The itching was unbearable. Lice cause infections too. Mother greased Hoda's head and hair with kerosene. This killed the lice. Now Hoda washes her hair regularly and combs it daily. Hoda likes clean hair. She feels well."

عزيز وهدى لا يلعبان في القنوات او الخنادق، حيث توجد القاذورات .

الأم تقول : الماء القذر في القناة سوف يجلب لكم المرض . وانا اريد ان اراكم دائماً اصحاء .

لقد صنع الوالد زحافاً وصندلا لكل فرد من افراد الاسرة ليوتدونها في كل وقت .

انها تحميهم من الاصابة بالبلهارسيا .

إذا اصيب احد افراد الاسرة بمرض، فانه يذهب الى الوحدة الصحية، حيث يعرض نفسه على الممرضة او الطبيب .

العناية بالاظفار والشعر

هدى تقطع اظفار اصابعها، لكن تصبح قصيرة .
انها تعلم ان القذارة تستقر في الاظفار الطويلة وتنتقل منها الى الطعام .

وجدت هدى قملاً في شعرها في يوم ما
وشعرت بكآبة شديدة لذلك .
وزاد من كآبتها ان القمل سبب لها حكة مؤلمة، وانها تعلم انه فوق ذلك جرثومة معديه .
دهنت الأم رأس هدى وشعرها بالغاز، لأنه يقتل القمل .
وتعودت هدى على ان تغسل شعرها بانتظام وتسرحه يومياً .
انها تحب الشعر النظيف وتشعر براحة لذلك

HEALTH EDUCATION

Refresher

TOBACCO AND SMOKING*

By HORACE JOULES, M.D., F.R.C.P.
Central Middlesex Hospital

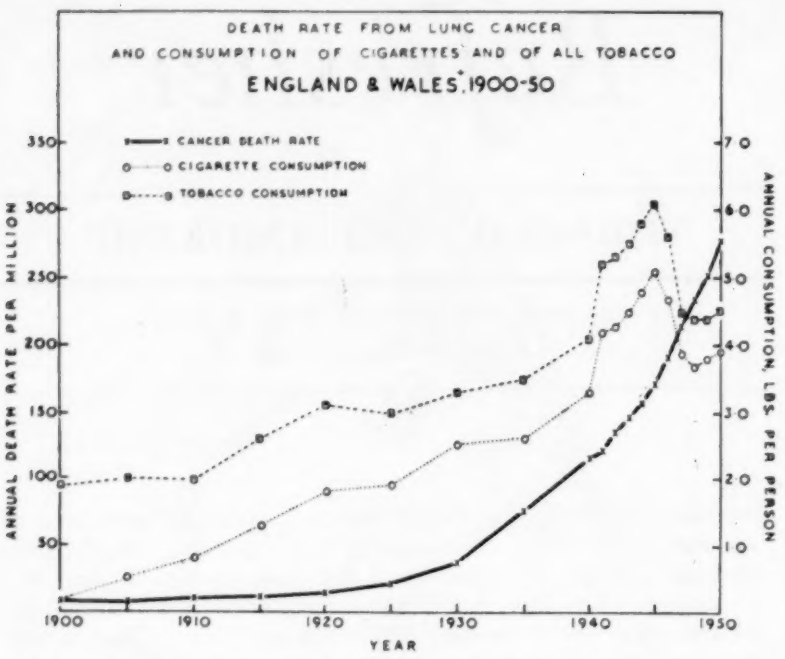
On each day of 1955 in Great Britain, 11,900,000 men aged 16 and over were smoking an average of 15.3 cigarettes. At the same time the average consumption of 6,300,000 women smokers was 8.1 daily.† The facts can either be regarded as a triumph for salesmanship or a measure of addiction in our community. Whatever our attitude it is essential that we attempt to assess objectively the effect that such indulgence is having on the health of our industrial nation.

Smoking has had its devotees in this country for almost 400 years, but until the beginning of this century the amount smoked as cigarettes was very small, for pipe smoking was almost invariable. The mechanical difficulties associated with pipe smoking, although slight, limited the use of tobacco in many circumstances. The evolution of the cheap cigarette made access to smoking almost universal. It could be indulged in under almost any circumstances and at a moment's notice. There is little doubt that the rigours of the 1914–18 war were responsible for a great spread of the habit. The stress of the appalling conditions on our troops in Flanders, and the strain of excessive hours on many factory workers demanded some relief. Cigarettes were offered and gratefully accepted. Gradually we have been conditioned to the idea that mental strain is eased by nicotine and all pleasures are heightened by its aid. Many patients assure us that the habit is their only pleasure in life.

* Reprinted from *Postgraduate Medical Journal*, **32**, 226–231.

† Figures obtained from the Hulton Readership Survey, to whom thanks are due.

The growth in the use of tobacco in its various forms is illustrated in Fig. 1—from this the transition to cigarettes during



* Cigarette and tobacco consumption estimated for Gt. Britain and Ireland prior to 1922, for Gt. Britain and N. Ireland subsequently.

FIG. 1.—Consumption of tobacco and cigarettes from 1900–50 in England and Wales, plotted against annual death rate per million from cancer of the lung.

the past half-century is very clear. However, it does not reveal the whole position, for millions of cigarettes are made daily from tobacco purchased by the smoker. This process is said by those using it to ensure a less irritating smoke, while the number of cigarettes made from each ounce of tobacco can vary with the state of the pocket. This increase of cigarette consumption for males and females is seen in Fig. 2.

All investigations into the effects of smoking suggest the pipe is less harmful, and so many workers have concentrated on the chemistry and pharmacology of products of cigarette smoking. Mechanical devices of many types have been set up in imitation of human consumption, but there is no general agreement on the conditions under which experimental smoking shall proceed. Consequently there is variation in the findings of the chemical composition of the smoke, while there is even greater variation in the tobacco used in different countries. The nicotine content

of Burley and Turkish tobacco smoke is given as 4.93 and 1.99 mg. per cigarette (Bradford *et al.* 1937).

Our present knowledge of the chemistry is fully reviewed by Kosak (1955). The constituents are divided into aldehydes, ketones, acids, alcohols and phenols, alkaloids, other nitrogen compounds, hydrocarbons and miscellaneous compounds, organic and inorganic. The evidence of the presence of 67 of these seems to be valid, while 49 other substances reported are felt to be in need of further investigation. Intensive research continues in attempts to isolate the carcinogenic factors.

Of the alkaloids available nicotine is the only one present in an amount likely to give rise to assessable pharmacological actions. A standard Virginian cigarette may yield 2.5 to 3.0 mg. of nicotine, dependent upon the method of smoking. Those who smoke and inhale deeply will absorb 90 per cent of this, while non-inhalers may metabolise less than 10 per cent.

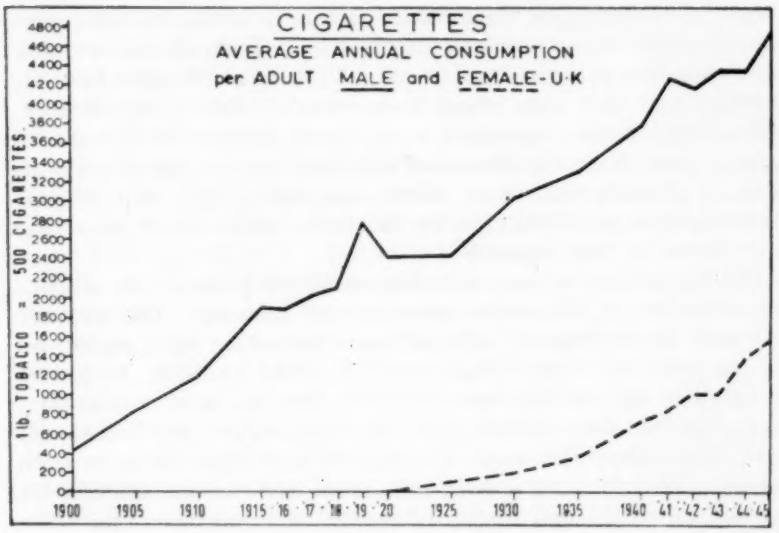


FIG. 2.—Annual number of cigarettes smoked, male and female aged 16 years and over, in Great Britain, 1900–45.

The action of nicotine on the human nervous system is extremely complex and very difficult to assess. The psychological factors are complicated and they may vitiate an evaluation of the pharmacological activity. Individual susceptibility is also a very important and unpredictable factor. The main effect on the nervous system is to stimulate, but larger doses may give rise to severe depression. The action on the vomiting centre, well known to those embarking on an early trial of the habit, is indirect and probably due to absorption from a swallowed solu-

tion. There is stimulation of the antidiuretic hormone of the posterior lobe of the pituitary as shown by Burn (1951). Nicotine is a neuro-muscular blocking agent and can in large doses cause death by neuro-muscular paralysis.

The effect on the circulation is again complex and it is doubtful if much of the experimental work in animals is applicable to man. There is, however, fairly general agreement that the blood pressure is raised, the heart rate increased and peripheral vasoconstriction produced. Insufficient work has been done on the irritant effect of nicotine and the other constituents of tobacco smoke to enable clear statements to be made. However, it is probable that suffusion of the eyes and irritation of the respiratory tract result from the ammonia, volatile acids and nicotine. Possible carcinogenic factors have been much studied, 3:4 Benzpyrene has been reported but it is impossible to state what product of the tobacco tars can produce the agreed clinical cancer.

Filters of many types have been investigated, but until agreement is reached upon the harmful factors in smoke, no statement can be made upon absolute filter values. There is considerable evidence that tobacco itself is one of the most effective filtering media, and this may have considerable clinical significance. Observers of the American scene have frequently noted the greater length of the discarded cigarette end as compared with that in Britain and many other countries. This may be one factor which is accountable for the lower incidence of bronchial carcinoma in that country.

Much discussion has centred around the presence or absence of addiction in relation to nicotine and tobacco. The attitude adopted by contestants is largely determined by their definition of the term and also by their own subjective reaction. Objective analysis is difficult in these circumstances but it is certain that many people have found themselves dependent psychologically and physically. Prisoners of war, suddenly deprived, have been known to fight ferociously with close and valued friends for possession of a small discarded length of cigarette. The value placed on a packet of these in Europe at the end of the war suggested something more than an easily corrected habit. The reaction of a patient, almost moribund with chronic cough, whose symptoms have been exacerbated for years by smoking, is as pathetic as any other drug addict. An excuse or reason can still be found for continuing to smoke when the respiratory system is almost overwhelmed with years of chronic damage.

Whatever term we use—habit or addiction—it is essential to realise that few heavy smokers can give up easily in a society where 60 to 70 per cent of their fellows are only too pleased to assist in their restarting. No effective antidote to nicotine has yet been discovered. Subtle and all pervading advertisement is

combined with social custom to defeat many who are anxious to rid themselves of a bondage which has severe financial as well as medical implications.

Clinical Effects of Smoking

Carcinoma of the Bronchus

Statistical studies (Doll and Hill, 1950, 1952 ; Levin, Goldstein and Gerhardt, 1950 ; Mills and Porter, 1950 ; Schrek, Baker, Ballard and Dolgoff, 1950 ; Wynder and Graham, 1950 ; Koulumies, 1953 ; Sadowsky, Gillian and Cornfield, 1953 ; Wynder and Cornfield, 1953 ; Breslow, Hoaglin, Rasmussen and Abrams, 1954 ; Watson and Coute, 1954) of unimpeachable quality have shown a rise in the carcinoma rate in countries where tobacco consumption has increased. This rise is proportional, in most series, to the amount smoked, especially in the case of cigarettes. The outstanding investigations of Doll and Bradford Hill in this country have set a pattern in thoroughness and expert assessment which may act as a standard throughout the world. Despite much opposition to their findings, no effective scientific criticism has been offered against them. Much controversy would have been prevented if those opposing the relationship had read all the evidence set out so dispassionately by these statistical experts, who began their carefully controlled investigations with a bias against a possible causative relationship. Gradually irrefutable evidence was built up which accords with clinical experience.

The extent of the problem in this country can be measured by mortality figures. These are set out in Fig. 1. They show a rise in yearly mortality rate which is unparalleled in other forms of cancer. There is little doubt that a portion of this increase, especially in the late 1930s and early 40s was due to increased accuracy of diagnosis and to more effective treatment of pneumonia which so often complicates carcinoma even in its early stage. However, when allowance is made for these factors there is still a formidable and increasing mortality to be accounted for. Fig. 3 shows the contrast between the fall in mortality from tuberculosis in England and Wales and the increase in deaths from this disease since 1940. A percentage of lung carcinoma does occur in those who have never smoked or who have smoked insignificant amounts. Most investigators find this not to exceed 15 per cent. The clinical history in the remainder follows a pattern which lends support to those investigating the problem from a statistical angle. In many patients smoking, most frequently of cigarettes, began at an early age, often 12 to 16 years, and reached its maximum in a few years' time—a maximum which varied from 15 to 35 daily, at which it has been maintained for many years. Troublesome "bron-

chitis " may have led to a reduction after the age of 50 to 55, but rarely has the habit been given up by the time the patient seeks advice for symptoms usually associated with advanced or complicated carcinoma of the bronchus. In 1955, most of our patients seen commenced the cigarette habit during the 1914–18 war and their lesion is developing during the decade 55 to 65 years of age. Numbers of patients are met who have proven disease between 45 and 55, but usually they are amongst the heaviest smokers, having 35 to 80 cigarettes daily to their credit. As Doll and Bradford Hill showed, the risk is proportionate to

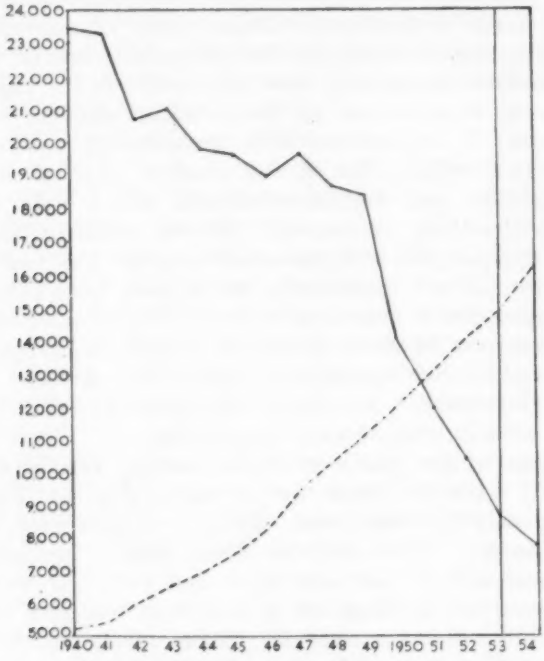


FIG. 3.—Total deaths from tuberculosis—falling curve—plotted against total deaths from cancer of lung—rising curve—in England and Wales, 1950–54.

the amount smoked. It is impossible to speak with scientific accuracy about the number of cigarettes consumed by affected persons but, except for the exceptional cases and very heavy smokers, 35 to 40 years elapse between the onset of the habit and the finding of the cancer. This clinical fact makes thoughtful physicians very anxious when relating the future of our smokers to the rise in cigarette consumption since 1914. A graph of cancer deaths projected 40 years after the rise in tobacco consumption and following the present trends gives reason for more than apprehension. The graph of cigarette consumption reached its maximum in 1945, for once again the rigours of war were

said to be alleviated by ever increasing addiction. Subsequent full employment associated with universal military training is maintaining our graph of consumption at almost the 1945 peak.

It is pathetic to realise that this aetiological factor in the case of an almost untreatable cancer has not been hailed by our profession and has not stimulated a preventive campaign which could do much to prevent hundreds of thousands of deaths in the next 30 to 40 years. A probable explanation may be in the fact that in 1951, as shown by Doll and Bradford Hill (1954), 87.3 per cent of male doctors smoked and more than 20 per cent consumed more than 25 cigarettes daily. We cannot afford to wait for the detection of the precise carcinogen before taking action. The mortality from carcinoma of the bronchus dropped considerably in some European countries during the war when cigarettes became almost unobtainable. These facts suggest that abstention or marked diminution of smoking for only a few years may lead to much saving of life, but there may be other explanations for these war-time figures. Too often, at the moment, even within the profession, people refuse to make the effort of abstaining from smoking with the assertion that "my damage is done, it is too late". There is no scientific evidence to justify this attitude. We do not know in individual cases how long smoking must continue before the inception of cancer, nor do we know whether the first or the last ten years of exposure is the more important in its evolution. Much discussion has centred around other possible carcinogens, but the evidence incriminating atmospheric pollution or the products of the internal combustion engine is meagre.

Bronchitis

Our long national smoking habits are associated with a bronchitis morbidity and mortality which is the highest in any country where statistics are kept. The irritant effect of the cigarette combines with the general atmospheric pollution of our industrialised cities and the vitiated atmosphere of factory, foundry and mine to produce a chronic and deteriorating lung condition which is made worse by each winter's virus infections. No effective remedy for such cough can be found without the full co-operation of the patients and the complete cessation of smoking. The full extent of the damage to our respiratory tract is difficult to assess, but in 1951 official statistics show that 26.6 million working days were lost by the insured population, while the annual deaths remain around 30,000 and have been comparatively uninfluenced by modern therapeutic advances (Fig. 4). At present the problem of bronchitis is more serious than cancer of the lung, but the role played by smoking is not so clear cut. In most clinical cases it must be regarded as a serious adjuvant.

Cardiovascular System

The commonest symptom produced by smoking 15 or more cigarettes each day is left thoracic discomfort and pain. This is usually experienced in the fifth left interspace, is of a dull aching character and is associated with occasional stabbing episodes which may alarm the patient. These symptoms not infrequently bring the patient to his practitioner and subsequently to a cardiologist. They are rarely found with any organic lesion but afford an opportunity for discussing the total effect of smoking on human physiology. This symptom is probably the commonest basis for anxiety in relation to the heart.

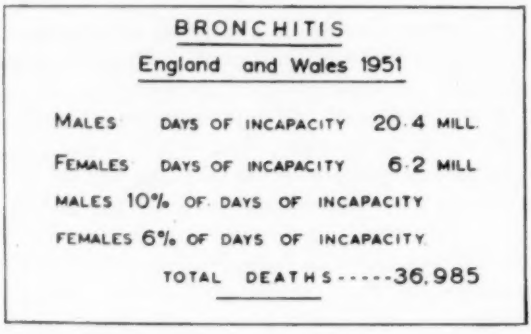

BRONCHITIS
England and Wales 1951
MALES DAYS OF INCAPACITY 20·4 MILL.
FEMALES DAYS OF INCAPACITY 6·2 MILL.
MALES 10% OF DAYS OF INCAPACITY
FEMALES 6% OF DAYS OF INCAPACITY
TOTAL DEATHS-----36,985

FIG. 4.—Number of working days lost in England and Wales from bronchitis in males and females, 1951. Total deaths from same condition.

Myocardial Infarction

The evidence relating smoking to the increase of coronary atheroma and thrombosis is not conclusive although the association of heavy smoking and early onset of myocardial infarction is a feature of the investigation of Hammond *et al.* (1954).

Where symptoms of ischaemia have developed and the myocardium is increasingly dependent upon a collateral circulation, smoking is harmful as in peripheral vascular disease. Complete abstention should be enjoined, but where this proves very difficult, severe restriction must be insisted upon.

Peripheral Arterial Disease

Where atheroma has led to sufficient narrowing of large arteries in the limbs to give rise to ischaemic symptoms or where occlusion has actually occurred, tobacco undoubtedly maintains and exacerbates the symptoms. This effect probably results from the narrowing known to occur in the arterioles and capillaries, thus diminishing the efficiency of the collateral circulation on which the limb is so dependent. For similar reasons it exerts a deleterious effect in established cerebrovascular disease and Raynaud's

syndrome of severe degree. Thromboangitis obliterans develops from the use of tobacco by susceptible people and the disease will develop and progress as long as smoking is continued. No method of treatment, not even sympathectomy, abolishes the harmful influence. Wright (1954) quotes the effect of smoking filtered cigarettes. "This patient first had active thromboangitis obliterans in 1940. In 1941 he stopped smoking and his symptoms remained quiescent until 1949, when he started to smoke again. Within six months gangrene of three toes developed. Once more on abstinence from smoking and with other therapy the disease became quiescent and the man was free from symptoms. In the spring of 1954, impressed by the advertising of filtered cigarettes he started to smoke them. Again his disease has been reactivated and he has early signs of pregangrenous involvement of the tips of the toes". Fortunately this is a rare but very disabling disease and there is little doubt that tobacco is the principal aetiological factor.

Gastro-intestinal Tract

Much speculation has centred around the possibility of peptic ulcer being caused by smoking. However, such scientific investigation as has been undertaken fails to demonstrate any causative relationship. There is some evidence to suggest that effective healing of ulcers may be delayed by excessive smoking. Batterman (1955) in summing up states that " as far as diseases of the stomach and duodenum are concerned control of the use of tobacco is essential for proper medical management of the patient".

Many functional disturbances of the gastro-intestinal tract undoubtedly result from excessive smoking while the appetite is held in abeyance by it. The mechanism through which this is mediated is not well understood, but the action on gastric motility together with some increase of blood sugar may partially explain the fact. However, one clinical effect of abstention is an almost invariable increase of appetite, enjoyment of food and, unfortunately, a gain in weight.

Careful review of the effect of the habit in the nervous system would yield little of scientific value beyond the rare occurrence of tobacco amblyopia, more common in pipe smokers and probably associated with vitamin deficiency.

However, we find no evidence anywhere to suggest that any psychological benefit commensurate with the risks to life and health are obtained by the inveterate smoker.

Summary

1. Sixty-five per cent of men and 40 per cent of women over 16 are regular smokers; 87.3 per cent of male doctors over 35 years have similar habits.

2. A short review of constituents of cigarette smoke and some of its pharmacological action is given.

3. The present yearly death rate from cancer of the bronchus of 17,000 in England and Wales is shown to be due mainly to smoking, especially cigarettes.

4. This disease has caused 100,000 deaths in the past ten years, and reasons are given for suggesting that we are only in the early stages of an epidemic which will result in half a million deaths in the next 20 to 30 years.

5. Preventive action by the profession and the Ministry of Health is urgent and it might be rapidly helpful.

6. The mortality and morbidity from bronchitis is greater in Britain than in any other country where statistics are available. The part played by smoking in this condition is important.

7. The effect of smoking on severe arterial disease is summarised.

8. The question is posed: Are there advantages from smoking which compensate for the known ill effects on health? The answer must be an emphatic NO.

Acknowledgments

I am indebted to Dr. Richard Doll for the use of Fig. 4, and to the *Medical World* for permission to publish this.

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International Report

THE PHOLELA HEALTH CENTRE

A Progress Report *

By SIDNEY L. KARK, M.B., B.Ch., Institute of Family and Community Health, Durban, and JOHN CASSEL, B.Sc., M.B., B.Ch., Pholela Health Centre, Bulwer, Natal

3. The Changing Mortality Rates

THE CRUDE MORTALITY RATE (1942–1950)

Year Ending	Mid-year Population in Family Service Area	Deaths Recorded	Crude Mortality Rate per 1,000 Population
December 31, 1942	887	34	38.33
December 31, 1943	2,937	63	21·45
December 31, 1944	5,184	116	22·38
December 31, 1945	5,926	168	28·35
December 31, 1946	5,919	126	21·29
June 30, 1948	6,524	140	21·46
June 30, 1949	6,622	127	19·18
June 30, 1950	7,481	102	13·63

Improvements which were taking place in the community were probably masked in the earlier period by the large increase in the size of the population, which was included in the family health and medical care programme. This is evidenced by the figures available for the group of families included in the first year of the family service. During the years 1942–1946 the death-rate figures were as follows:

1942	....	38.33
1943	....	20.90
1944	....	18.07
1945	....	15.55
1946	....	13.11

Of importance in this respect is the same encouraging trend in

* Reprinted in abridged form from *South African Medical Journal*, **26**, 6 and 7, February 9 and 16, 1952. The first part appeared in *Health Education Journal*, May, 1956.

mortality reduction that has become manifest for the very much larger community of 7,481, included in the family service area by 1950.

Infant Mortality.—One of the most important influences on the reduction in the general mortality has been that of a marked diminution in the infant mortality rate. In considering the findings it is of importance to remember that figures for each year include the new areas added in that particular year.

Comparison between "new" areas and "old" areas indicates that "new" area infant mortality rates are consistently higher than those for the total family service area in each year. Comparing the total infant mortality in the "new" areas with those in the "older" areas in the same five periods, we find that there were 61 deaths in infants 0–12 months of a total 252 live births in the five "new" groups. The corresponding figures for the "old" areas were 82 infant deaths of 729 live births. The following table indicates the infant mortality of each group, the difference being significant:

	"New" Families	"Old" Families
Infant Mortality (expressed as a Percentage of Live Births)	24·20 (S.E. 2.70)	11·25 (S.E. 1.17)

Difference between "Old" and "New" : 12·95%
S.E. of Difference : 2·94

$$\frac{\text{Difference}}{\text{S.E. of Difference}} : 4{\cdot}40$$

The superiority of the "old" areas which is demonstrated here was already becoming apparent in the early years, as is evidenced by the following table:

	1942–44 "New" Families	1943–44 "Old" Families
Number of Live Births	199	145
Number of Infant Deaths	51	24
Infant Mortality (expressed as a Percentage of Live Births)	25·63 (S.E. 3·09)	16·55 (S.E. 3·08)

Difference between "Old" and "New" : 9·08%
S.E. of Difference : 4·37

$$\frac{\text{Difference}}{\text{S.E. of Difference}} : 2{\cdot}08$$

It seems likely that the reduction in infant mortality noted is related to the existence of the Health Centre.

The second question posed above, whether the particular kind

of programme carried out by the Health Centre has influenced this trend, is also partly answered by this analysis. In discussing this question it is necessary to review the differences between the service provided to those persons included in the defined family service area and that which is available for those not yet included in the family service.

The essential difference is that which exists between the neighbourhood family health and medical care programme on the one hand, with that which may best be called a polyclinic service.

The main difference between the service received by the patients is not to be found in specific technical aspects of diagnosis and therapy. It is essentially in the nature of the relationship which exists between doctor and nurse on the one hand, and the patient on the other. The family doctor and nurse have a very much keener appreciation of the needs of individual patients from homes included in their family health and medical care programme, than of those whose families are otherwise unknown to them. The patient, too, develops a different relationship with a family doctor or nurse from that with one who is not so favourably situated, e.g., doctors and nurses in hospital outpatient departments, polyclinics, and general practitioners other than those who are at the same time family doctors. It is this feature that distinguishes the care given to the two groups of patients at the Health Centre itself.

The outstanding difference between the two groups in respect of the services provided in their homes or in the immediate neighbourhood of their homes is that which has been referred to as health education. This programme, carried out by specially trained personnel, is an integral part of the neighbourhood family service and is not provided for other areas, except in exceptional circumstances, e.g., when the Health Centre is asked to assist in the control of an epidemic. Another, but very much more recent difference, is that of the neighbourhood sessions for the care of the mother and baby conducted by nurses. These sessions are at present held in homes within the family service areas, although mothers not living in these areas are welcome to attend and have done so.

In the light of this brief review we can now discuss the difference in infant mortality between "new" and "old" families. Since 1940 all the families considered in this analysis have had free access to all facilities of the service which have been gradually developed at the Centre itself. After incorporation in the scope of the family service they have continued using these facilities, but a change has taken place in their own homes. This change is due to the health education programme carried out by health assistants. By this programme the emphasis of the service is modified from what is done for patients to what the family or

community does for itself, assisted by the Health Centre staff. The interest of the community has been developed slowly with the result that an increasing number of families is participating actively in improving standards of health. This is a distinctive feature of the family service.

Summary

1. A progress report of the Pholela Health Centre has been presented, including a further review of the aims, methods and extent of the service which has been developed.

2. This Health Centre has now been incorporated as the rural ("Native Reserve") project of the Institute of Family and Community Health established by the Union Health Department in December, 1945.

3. A team of family doctors and a dentist, functioning together with family nurses and specially trained health educators, provides a combined curative and preventive service within the framework of a neighbourhood family health and medical care programme.

4. The team is assisted by the provision of clinical laboratory side-room and health-recording facilities, for which special personnel have been trained.

5. This type of "general practice" is discussed in relation to some of the more important needs of the community, and the results achieved during the past 10 years. Among the more important changes noted are:

(*a*) The increasing interest and active co-operation of the people in the project, demonstrated by improvements effected in their own homes.

(*b*) The marked reduction in the occurrence of cases of gross nutritional failure, e.g., pellagra and kwashiorkor, associated with changing dietary habits more especially in infant feeding.

(*c*) The absence of any epidemic of typhoid fever, typhus fever, smallpox and diphtheria in the area over the last eight years, in spite of repeated outbreaks of these diseases in the surrounding areas and the occasional introduction of single cases of these diseases from town or other affected areas.

(*d*) A steady decrease in crude mortality and infant mortality rates, the significance of which is discussed in some detail.

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BOOKS

EDUCATION AND MENTAL HEALTH, by W. D. Wall. (UNESCO/Harrap. 1955. Pp. 347. Price 17s. 6d.)

This is a refreshing and thought-provoking study of fundamental dynamic psychology applied to all the recognised problems of the education and training and care of children. Ideas both new and not so new on education and reforms considered or being tried out are examined in the light of the basic principles of mental health. If a reader studied the book first and only later learned that it is the work of some 15 experts in the two subjects from 8 different countries, and that the manuscript was commented on by over 60 experts from 20 different countries, he could not but marvel at the unity and balance that has been achieved here. This can only be due to very painstaking editing. It is very well written in a clear style with a masterly simplicity of approach.

The importance of training and the development of sound methods on a basis of tested principles is constantly stressed. Controversial subjects and views, values and beliefs, even morals, ethics and religion are dealt with fairly.

Mental health is taken to be indicated by freedom from unjustifiable fears, and the function of the group is to enable tenderness, innocence and normal hostility all to be managed constructively.

The book is authoritative and comprehensive, indeed all-embracing, yet a truly balanced approach is characteristic throughout. It is packed with common sense based on sound learning and practical experience. No one working with or for children or young people can afford to neglect it.

J. WILSON WHEELER.

SCHOOL HEALTH SOURCEBOOK, by Oliver E. Byrd. (U.S.A.: Stanford University Press. London: Geoffrey Cumberlege, Oxford University Press. 1955. Pp. 372. Price 60s.)

Dr. Byrd is a Professor of Education and Director of the Department of Hygiene at Stanford University, U.S.A. He has had over twenty years of teaching experience in both public and private schools, and is a consultant on school health.

For the purpose of this book, Dr. Byrd has collected and condensed four hundred significant published articles and papers concerning school health in the United States of America during the period 1945–1955, and presented the main facts from them, which should be of interest to all concerned with the health of the school child.

The book provides a useful source of information on what is happening in the U.S.A. in the field of school health, but its main value lies in the summarised accounts of experiments and research into the problems confronting health authorities responsible for providing school health services and the problems facing the teacher—what he should include in his health teaching and methods of giving health education. Methods of carrying out this research and tabulated facts and figures giving the results are considered in such topics as Communicable Disease Control, Alcohol and Narcotics Education, Nutrition in School, Problems of the Handicapped Child, Mental Health in School, Health Instruction, School Safety, Fire Prevention in School, Health of the Teacher.

Allowing for the differences existing between the American and British systems of education, the *School Health Sourcebook* should be a handy reference book giving the latest information on all aspects of the school health services and health education. One feels the need for a similar work of collected information on school health as practised in this country. At present, any reports that are published are scattered over a wide range of journals and books. With such a summary of facts and results of experiments gathered together in one volume, the person interested in school health would have the knowledge immediately to hand and know where to look for detailed accounts. The Central Council for Health Education does this in its *Health Information Digest* for the wider field of medicine in general, but not for school health in particular.

An extensive bibliography of the four hundred books and papers from which the extracts and summaries on school health have been taken is given at the end.

FRANK TYRER.

A.B.C. OF FOOD AND CHILD FEEDING, by F. Le Gros Clark. (National Society of Children's Nurseries. Pp. 49. Price 1s. 9d.)

As modern medicine conquers infections, the menace looms larger of functional diseases, such as rheumatism, arthritis, ulcers of the digestive tract, gallstones, thrombosis, disseminated sclerosis, cancer. We do not yet understand the causes of these maladies, but there are clues that suggest that some at least of them may be associated with dietary deficiency or imbalance. For example, there seems to be a link between liver cancer in Africans and the nutritional deficiency disease of kwashiorkor, and again between dietary fats and thrombosis and gallstones. If the functional diseases of scurvy or rickets are due to lack of Vitamins C or D, why should not other functional diseases of as yet unknown cause be due to lack of some more recondite food factors?

We know enough about nutrition to believe that, apart perhaps from measures against infection, diet makes the most important single contribution to health; but we do not yet know all the dietary factors that should or should not be included, nor quite how the many factors work together to produce good health. In this situation we should take advantage of all the knowledge of nutrition that science and human experience have accumulated, and yet keep our minds open to receive new advances.

The booklet under review is intended for those who are beginning the study of nutrition. The learner of a subject which is still in an unfinished state, and yet is so important for human welfare, needs wise guidance. Mr. Le Gros Clark, with the sure hand of experience, provides the reader with a balanced and clearly written introduction, which is rich in practical advice, given without dogmatism.

H. O. J. COLLIER.

CHILDREN WHO DISLIKE THEIR FOOD, by Ruth Thomas, illustrated by Eileen Soper. (London: Family Health Publications. Pp. 15. Price 1s. 3d.)

This is a reproduction of a broadcast in which Miss Thomas explained the motives of children in refusing to eat and gave guidance and reassurance to parents. The mother who goes to endless trouble in the preparation of meals is usually the one to experience the greatest difficulty, and her own anxiety and frustration is the cause of the tension at mealtimes. The child exercises his independence because he feels the strain of being looked after, guided and helped, and interfered with too much. The remedy is a nonchalant but careful approach by the parent, and the author tells us that she has known very few children who do not regain their appetite when the whole family set out to give the impression that they do not care whether the child eats or not.

Practical hints are to give casual titbits, to allow the child to mess with his food, and to let small children move about during meals if they want to. Sometimes interest can be aroused by participation in the preparation of the meal.

This is an attractive little book which should be available to all whose business it is to bring up children or to advise others in this task.

A. J. DALZELL-WARD.

DO COWS HAVE NEUROSIS?, by June Bingham. (Mental Hygiene Council of Westchester County, N.Y., U.S.A., amended and adapted by the National Association for Mental Health, Great Britain, 1954. Pp. 16. Price 1s. 6d.)

The N.A.M.H. must be congratulated on making this pamphlet available to the public of this country. It is couched, for the most part, in understandable language, and the amusing illustrations are adapted to the trend of the text. Mrs. Bingham sets out to explain the difficult concepts of mental health and illness, and to demonstrate, in terms of daily experience, the differences between normal and abnormal reactions. The outlook is sensibly optimistic, and the "expert" is always lurking in the background to brighten the prospect. Interpretations are dynamically orientated, in keeping with the current climate of the mental hygiene movement. The N.A.M.H. might, however, have usefully carried their amendments a little further and eradicated some esoteric sections that will only bewilder the layman. With these few reservations, the booklet can be highly recommended to the general reader.

E. J. ANTHONY.

CHALLENGE TO HERITAGE, by Ruth Anderson Oakley. (The Saint Catherine Press Ltd., 29 Queen Street, London, W.C. 1955. Pp. 124. Price 6s.)

In a preface the author asks whether we are satisfied with present-day society, and states that this book is an attempt to show how many problems, such as delinquency and divorce, have their origin in the early years of a child's life. But in spite of the commendations on the dust cover, it is not a book to hand to conscientious parents who are perhaps already feeling somewhat confused and anxious, for it is one of those publications in which an enthusiast states opinions, and even gross inaccuracies, as facts and interlards them with highflown flights of fancy. Occasionally the author hits the nail on the head, but how are the "mothers of England" to distinguish fact from fancy, truth from half-truth?

Discipline is discussed at length, and some of the arguments suggest aims and values more usually ascribed to the Victorians or to the leaders on the other side of the Iron Curtain than to present-day England, though the author counteracts them with "It is far better to be a good mother with love and common sense than to misinterpret and misapply psychology, which leaves the child in vacuo" and "Good discipline is never repressive; it is that form of training which teaches the child through willing acceptance to discipline himself."

The most profound contradiction seems to lie between the many references to the Christian ideals, and the exhortations to live up to and by them, and the conclusions expressed on page 116: "Crime has increased through the sentimentalists, who have brought indirect pressure to bear on the administrators of the law by a demand for leniency to the offender . . . If there is a tendency on the part of the public to excuse anti-social behaviour, this is further evidence of weakness. . . ." We have not yet attained to full understanding and effective treatment of the socially ill; this book might have helped, especially in the prevention of such human wastage, if the author had only taken the trouble to ascertain the facts accurately, present them clearly, and distinguish carefully and at all times between proven fact and personal opinion.

ANNE BURGESS.

THE CELL, THE HUMAN ORGANISM AND CANCER, by A. Leroi. (New Knowledge Books, 28 Dean Road, N.W.2. Pp. 24. Price 2s. 6d.)

The thesis on which this booklet is based seems to be that although cancer manifests itself as a disease of the cell it is really a disease of the whole body. From this the author argues that as long as "the conception that the cancer problem is a cell problem" exists, cancer research and cancer healing will be dominated by that conception.

If this book had been written thirty years ago, it might have been of value in widening the field of research, but no such stimulus is necessary to-day. The author says "the formative forces which are fundamentally at work in the organism are the polar opposite of the forces at work in the cell". The "formative forces" are not defined or described, but it would seem that this sentence means: all cells tend to de-differentiate unless they are kept under the control of various endocrines. Not everybody will agree with the author that a cancer cell is simply a de-differentiated cell and that "there is no qualitative difference recognisable between tumour cells and normal cells".

Nobody to-day who is doing cancer research is ignorant of the influence of the endocrine glands; indeed chemotherapy, which is the hope of the future, started by the giving of endocrine extracts for prostatic cancer. It is scarcely possible to open any cancer research journal, or indeed any other medical journal, without finding an article on the effects of endocrines, either in animal experiments or in clinical trials. Surely the author must be aware of this.

MALCOLM DONALDSON.

SECRET ENEMY—THE STORY OF A DISEASE, by James Cleugh. (Thames & Hudson. 1954. Pp. 273. Price 18s.)

Mr. Cleugh believes that the conventional morality concerning sexual intercourse has been a serious impediment to the treatment and control of syphilis throughout the ages. To prove his point he has produced what is in effect an outline of history, crammed with facts concerning the history of syphilis related to all the great movements, epochs, wars, and political changes from the fifteenth century until the present day.

As regards the facts he has been able to discover, there can be no doubt that these are as accurate as is possible,

bearing in mind the ancient manuscripts from which they were gleaned, and the amount of scholarship involved must have been considerable, apart from the 48 works which he lists in his selective bibliography.

What is so remarkable about this book, however, is the aggressive and even violent tone which the author maintains from the first to the last page.

Mr. Cleugh has pronounced likes and dislikes. He admires "The Age of Reason," Voltaire, Rousseau and all who call themselves scientific. He admires "strong men" and considers that Napoleon was "the sudden flashing star," which "put fresh heart into the sick mistress of European culture." In keeping with a distinctly Nietzschian philosophy he also admires all the notable syphilitics of history who were men of action and divorced from the ordinary human emotions; while he equally despises business men. This is reflected in a curiously ambivalent attitude to syphilis, which is credited with producing brilliance and energy in generals, and bizarre and maniacal conduct in nineteenth-century financiers! He dislikes the Church—all denominations—and moral philosophers.

In the first chapter there is an account of the ancient plagues and pestilences which is designed to show that syphilis was only one accident amongst many, and was related to insanitary habits. There is a complicated historical, geographical and archaeological argument to prove that syphilis was not imported from America. In the chapter romantically entitled "The Dragon's Teeth," the events in the fifteenth and sixteenth centuries are related, with graphic accounts of the horrible lesions which syphilis then inflicted on its victims. The Church is attacked for its attitude to sexual intercourse and particularly for advising sexual continence, advice which the author considers to have always been a counsel of despair.

Fracastoro deservedly has a chapter all to himself with many biographical details, but Mr. Cleugh's interpretation of Frascastoro's attitude to the Council of Trent is no doubt the author's own projection.

In the long chapter on "Iron Harvest," which occupies 113 pages, whole ages and epochs are examined and castigated severely. At times it would seem that the author was unaware of the way syphilis is contracted, as he so frequently points to insanitary conditions, bad social conditions and even climate as being the cause of the spread of the disease. He believes that from 1500 until the middle of the nineteenth century everyone who lived "actively and inquisitively" contracted syphilis. As may be expected, all the notable syphilitics appear on Mr. Cleugh's stage together with some characters who, he believes, died from syphilis, including Napoleon, although history relates otherwise.

The only remedy, he claims, is the intensive application of scientific treatment. Human behaviour he considers to be outside the question, while he repeatedly denies that prostitution is as important a factor as most workers believe.

This book is written subjectively and with bias, and in some passages it is obscure. Moreover, the author's antagonism to morals and ethics will do more harm than good in these days when all who have interest in the public welfare are united to finally conquer the venereal peril. Partnership between Church, Moral Welfare and Medicine is the modern mood, whereas it is impossible to escape the feeling that *Secret Enemy* is written in a mood which is now outdated. It would be ungenerous, however, not to admit that the historical research gives this book some value, and anyone who wished to check facts in the history of syphilis could well make use of it as a work of reference.

A. J. DALZELL-WARD.

INTERNATIONAL SURVEY OF PROGRAMMES OF SOCIAL DEVELOPMENT. (United Nations. New York, 1955. Pp. 219. Price 15s.)

This is a comprehensive survey of all government schemes now in progress in the principal states of the United Nations. The schemes are aimed either at improving the general well-being of the whole population or that of groups with special needs. The material has been prepared by the Bureau of Social Affairs, United Nations Secretariat, in co-operation with I.L.O., F.A.O., U.N.E.S.C.O. and W.H.O. The scope embraces health, nutrition, housing and community development, education, employment, and social security. This should form a very useful reference work with medico-sociological research as it is a guide to modern trends in policy and practice and so to general principles.

A. J. DALZELL-WARD.

Food Hygiene

The Council has produced a new double crown poster "Your Guide to the Food Regulations 1955" (D.C.7), setting out legal obligations under the Act in pictorial form. These are 11d. each nett.

Smog

There are now new editions of the two leaflets "Smog" (1s. 9d. per doz.) and "Is Yours A Guilty Chimney?" (1s. 6d. per doz.), and also a new card, suitable for use as a bookmark, on the same subject (4s. 6d. per 100).

Home Safety

The Council has added to its range of material on home safety a new double crown poster "Falls" (DC.4), 1s. each nett, a bookmark card on the same subject (4s. per 100), and also two new leaflets "Home Safe Home" (L. 59 and L.60). The first deals with accidents in the home to adults, particularly the elderly, and the second is intended for homes with young children. Both are 2s. per dozen, subject to the usual discounts.

THE CENTRAL COUNCIL FOR HEALTH EDUCATION
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EUSton 3341

Printed in Great Britain by Fisher, Knight & Co., Ltd., St. Albans.